The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVII, NO. 20 CHICAGO, ILLINOIS NOVEMBER 11, 1916

THE HEALTH EDUCATION OF THE GENERAL PUBLIC *

W. C. RUCKER, M.D., M.S., Ga.P.H.
Assistant Surgeon General, United States Public Health Service
WASHINGTON, D. C.

The sanitary administrator realizes that there are certain things which the public health authorities must do for the body politic; that there are certain things which the citizenship must do for itself, and that there are certain things which can be done only through the cooperation of the citizenship with the health authorities. In order to accomplish anything in a public health way, it is necessary that the sanitary authorities have the financial and moral support of the citizenship. If the general public is not informed as to the need for personal and public hygiene and sanitation, it is extremely difficult to secure this. These facts have made it increasingly apparent that unless sanitary and hygienic education is brought to the general public the greatest good cannot be attained. As a result we have devoted more and more time to lay public health education, and in many instances this has been carried to a high degree of excellence, but in general it may be said that the work has only just begun, in fact that there is at least thirty years of hard work ahead of us before we will achieve the maximum of results.

Somebody once said that publicity was the handmaiden of sanitation. If this publicity is of the right sort, if it is carried on with a full understanding of mass psychology, it is bound in the end to achieve good results. The chief criticism of the work which has been done in the past is that it has been of too spasmodic a character and the results aimed at were only temporary in their nature. Too much dependence in the past has been placed on the spoken word, and as a result there has been an enormous amount of speech making, too frequently by persons whose zeal exceeded the accuracy of their sanitary information! The spoken word, the mass meeting, has a certain place in public health education, but it should not be forgotten that only those who are really interested in the problem come to hear the lecture. It is easy enough to convince a person who knows that he wants sanitary education. The great problem is to convince the person who does not know that there is a necessity for his being convinced, or who perhaps has made up his mind not to be convinced. In time of grave public danger, as, for example, during a serious epidemic, when everybody wants to know what steps must be taken to stamp out the scourge, the public lecture is an efficient means of rapidly informing a considerable number of people. The good obtained in this way is, in the case of adults, apt to be temporary only, and cannot be relied on as a permanent measure. Even the most convincing speaker is able to convey only a small portion of the lesson in this way and very often it is speedily forgotten by the hearers. There is also the danger that the public, always fickle in such matters, is apt to tire of this continuous stream of speech making and forsake their sanitary leaders altogether. The measure which will bring the greatest good does not lie wholly in the spoken word. What the American people want is more demonstration and less talk in public health work.

Demonstration takes many forms and includes ocular exposition by stereopticon slides and motion picture films. These two methods are very good, particularly in the education of children, but the effects lack permanency to a certain degree. The stereopticon lecture must be accurate. It must be entertaining. The pictures must be good and must each one tell its own story. If the lecturer can so arrange his subject that he makes no reference to the slides whatever, but can have the pictures appear at the time when he is making a given point, the effect will be better. Too many lecturers treat their subject as if they were showing a family album, merely turning the leaves of a lot of disconnected pictures and undertaking to explain what each one is about. The lecture itself should be strong enough to stand without the assistance of the slides and the slides should be good enough to tell their own story without the assistance of the lecture. When these two are carefully dovetailed together there is produced a strong impression on the mind of the audience, an impression which is received both through the ears and through the eyes. This has the advantage that the message in this way reaches the inner consciousness of both ear-minded and eye-minded people.

The stereopticon form of demonstration is relatively cheap. The upkeep is not necessarily high, and when handled by experts brings fairly good results. That there is a demand for this form of public education is shown by the results achieved by the stereopticon loan library of the Public Health Service. This consists of some fifteen thousand slides and is available to any one in the continental United States. Persons desiring to use the library make an application and are loaned an illustrated catalog from which they choose their slides. On the return of the catalog, slides are mailed to them. In the box is a frank for the return of the slides after use. In cases in which it is desired, a lecture is furnished with the slides. The demands on this library are enormous. Not only do sanatoriums and physicians requisition slides, but ministers, Sunday school teachers, social workers, neighborhood organi-

* Chairman's address, read before the Section on Preventive Medicine and Public Health at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

zations, and many individuals who desire to give lectures to small groups of friends. This has been the means in the past year of reaching several million people, and while it is believed that only a small percentage of those who heard the lectures retained a permanent impression, that there was a certain spreading of the gospel of sanitation in this way there is no doubt.

Moving picture films have not, on the whole, brought so good results as was expected of them at first. People do not go to a moving picture show to be educated, as a rule. They go for amusement instead, and as a result the moving picture operators throughout the country are more and more shutting out the public health films. The motion picture demonstration has the disadvantage that it reaches people through their eyes only, and the descriptive matter must be written very tersely. This admits of relatively little explanation. The character of the moving picture drama which is most popular would seem to indicate that the motion picture fans are not interested in the saving of life, since invariably there are one or two people killed with every reel. The sanitary scenario, therefore, must be sugar coated; must live up to the traditions of the moving picture stage. This renders the preparation of such playlets extremely difficult, and I am afraid that the cost of production will limit this phase of sanitary education more and more in the future.

It is surprising how much good can be obtained through well-prepared charts. Any one who will study closely the visitors at a public health exhibition will be surprised at the way the public is attracted by a well-made chart. This is not altogether remarkable when it is considered that man is still in the picture writing and reading stage, and the average individual who picks up a new magazine always looks the pictures over first. Charts must be very short and to the point. They must if possible contain a picture or a diagram. They must tell the fact which they are trying to impart in as short and forceful a manner as possible. They must be artistic and the color scheme and arrangement pleasing to the eye.

Well-made models are most excellent, but they are expensive and only those really interested in the subject will take the trouble to come to see them. It is surprising how difficult it is to make a really good model, particularly to make a good model which contains a novel feature. Working models are by far the best, but they are expensive to produce, to operate and to maintain. In every instance the model must be so planned that the person who looks at it cannot receive an impression other than that which it was desired to give. Models which contain a puzzle, which will make people stand in front of them and wonder how they operate, are exceedingly efficient, and I have often wondered why we did not utilize the principles of Mrs. Jarley's wax works more in this connection.

Printer's ink is the great medium of public health education. Intelligent, well-written newspaper articles, prepared after due consideration of the psychology of the average newspaper reader, are of the greatest benefit. It is exceedingly difficult, however, to produce really good newspaper stories which the papers will print and which the public will read. Too much of the public health press agent work of this country is couched in the language of the high school essayist, the point of the story being carefully concealed in the last paragraph. It would be a good idea for the public health curriculum of our universities to afford a course in sanitary newspaper work. Any good newspaper man will tell you that the gist of the story must be in the first few lines and that this must be written in such a way as to tempt the reader to continue through the article. Once his interest has been attracted, he will read through a considerable amount of explanatory matter.

Newspaper articles must be written with an absolute absence of medical terms. They must be good sense. They must be convincing and they must tell a story. It is exceedingly easy to get the newspapers to print news, but it is equally hard to secure the publication of views. Editorial utterances may be read by a certain percentage of the newspaper reading public, but what the average citizen is interested in is found in the news columns. If, however, a single sanitary fact can be crystallized into a single pointed paragraph, much better a single sentence, it will be printed. It has been found that much better results can be obtained when the editor is notified that credit need not be given for the article. After all it is not the health authority or his department that is to be impressed on the public mind, but the single fact which it is desired to teach. Special articles in magazines are of great value. They invariably require illustration, a thing which is not always easy.

The use of printer's ink in the publication of special bulletins is another valuable means of public education, provided the bulletin can be made to reach the citizen. This is not so easy as it sounds. Recently several magazines and newspapers have undertaken to distribute free of cost health bulletins to those of their readers who made application for them. This is an excellent idea. It tells the reader in the first place where he can get a certain bulletin. This is of educational value in itself. And second, it makes him want the bulletin enough to write for it. This insures to a certain extent that the bulletin will not be destroyed until it has been read. In the preparation of these bulletins, it should be borne in mind that what the public wants in them is not glittering generalities, but service. The bulletin must be accurate, readable, well illustrated and well printed. A cheap, shoddy-looking bulletin discounts the effect of the matter which it contains.

The demonstration, however, which is of the greatest value is that which shows to the general public just what can be accomplished by sanitation. The health officer who attacks a certain situation in his town and shows to the people what can be done through the application of scientific principles has produced an effect which is lasting in character. The people of New Orleans, for example, have learned once and for all the lesson of the conquest of yellow fever. The citizen of San Francisco is well informed as to bubonic plague, while the campaign against typhoid in Martinsburg has exerted a permanent effect on community life in that city. What we need is a greater number of demonstrations of this sort. The creation of model counties, the up-building of sanitary towns, the increase in civic pride which comes after sanitary rehabilitation, is such that it is not forgotten speedily. The public health nurse is of the greatest value in this connection. She is the connecting link between the shop and the home, the entering wedge of the haven of good health. Hitherto she has been most used in metropolitan districts, but her field of usefulness in the country will be even greater in the future.

The great sanitary hope of the future, however, lies in the health education of the child of today. It is true that the child can be more easily reached through the spoken word than can the adult; that the effect of stereopticon lectures and motion picture demonstrations is more lasting; that the sanitary and hygienic instruction received in the course of the curriculum will do much to make the child of today the sanitary, clean-lived citizen of tomorrow, but, as with the adult, the child must have an ocular demonstration of cause and effect in the prevention of disease and the up-building of health. This must begin with the kindergarten and extend through the graded school, the high school and the college. The subject must not be thrust to one side, used as a stop-gap to fill in a few idle moments. It must assume a place in the educational scheme equal to that now occupied by the three R's; if this is done, and done well, we will build a nation of strong, health-loving people, whose daily life is governed by a working sanitary conscience.

Throughout this address the use of the word publicity has been scrupulously avoided, because to the average mind the word publicity means newspaper exploitation. In the proper sense of the word publicity is the great aim of the public health education of the general public. We, as the sanitary profession, are much in the position of the manufacturer who has a certain article which he desires to market. He must first produce the article. He must be certain that it is a good article, and having arrived at this conviction he must create the demand for it by making the general public share his belief in its worth. We know what we can do in public health work. The general public does not know how much good can be done them. The task which lies before us is to so educate them that they will realize the good which can and will come from the observance of the laws of health. We must create in them a demand for public and personal hygiene, and if, through every medium, we keep this constantly before their eyes, hygiene and sanitation will become household words and rules of action. We would do well to study the methods which have been used in popularizing manufactured articles and to change the plan just enough so that it may better fit this important work which lies before us.

The American Medical Association has already accomplished much in this field. It must do more. It must further the cause of public health education, not only of the lay public, but of the profession as well. It must be a coordinating center of the volunteer educational efforts in order that the work may have a scientific, wholesome basis. We must harmonize and extend the movement. We must move forward with high ideals as the goal. It is suggested that this section take steps to bring to the attention of the Association the necessity for a public health exhibition in connection with our annual meeting, so that we may thereby leave the definite impress of our visit in the tangible form of better health and cleaner living. Ours is a great work. Its opportunities are as vast as the distribution of the human race; and if we but grasp those which are nearest to us, our lives shall not have been in vain. May the deliberations of this section hearten and inspire us for the task which waits us.

An Early Master.—I repeat then once more: a special germ, proper to each contagion, gives rise to each contagious disease. Epidemic scourges are only engendered or disseminated by their reproductive germs. In all ages, every tongue has spoken it.—Bretonneau, 1855.

THE NONSPECIFIC AND THE SPECIFIC DEFENSE OF THE CHILD AGAINST THE TUBERCLE BACILLUS *

FRANCIS M. POTTENGER, A.M., M.D., LL.D.
MONROVIA, CALIF.

Soon after birth children begin their contact with infectious bacteria. That they do not succumb to their attacks is due to a certain protective mechanism with which the child is endowed, whereby bacteria are destroyed.

Whether or not a given inoculation will be overcome, and the child go free from infection, or whether the bacteria will gain a footing in the tissues, multiply and produce their specific disease, depends on the efficiency of this natural defense. Sometimes the protection may be insufficient and may fail because of impairment of the defensive mechanism. If we did but realize the universal presence of pathogenic bacteria and the innumerable inoculations which take place in the tiny infant, we would have great respect for this protective mechanism with which the child is endowed.

In the first place, there are few portals of entry for bacteria. The skin offers an almost impenetrable barrier. The main avenues through which inoculation takes place are the nose and mouth, the bacteria entering the body along with air, food and drink. When bacteria enter through either of these portals they come in contact with secretions which possess bactericidal properties, and meet a mucous membrane which is not easily penetrated when healthy. There are also arranged here and there, at points of vantage, masses of lymphoid tissue, the cells of which are so arranged that the bacteria are more or less easily deposited within them. This lymphoid tissue contains the lymphatic elements, which have defensive properties in abundance; in fact, lymphocytes are formed within it. Should bacteria pass through the mucous membranes, or make their way beyond the lymphoid tissue, they are met by what might be termed an internal defense. Here they come in contact with the lymph and various body cells which have defensive properties. The protective elements are found both in the fluids and in the cells. While the leukocytes possess protective properties to the greatest degree, yet other cells have a part in the natural defense.

I desire particularly to call attention to the protective influence of the lymphatic system during these early years. If bacteria pass through the masses of lymphoid tissue, such as those in the throat or vault of the pharynx or those in the intestinal tract; or if they pass through the mucous membranes, they find their course by way of the lymph channels which drain that portion of the mucous membrane or those masses of lymphoid tissue through which the bacteria have passed to the lymphatic glands.

Lymphatic glands are the seat of leukocyte production. They are rich in lymph, consequently afford ideal conditions for destroying the invading bacteria. The importance of the cervical glands in screening out and destroying bacteria can be readily appreciated. Children of the poor, who live under bad hygienic conditions and suffer injury to their mucous membranes; who, because of their method of living, possess lowered resisting powers; and who, further, on account of the

* Read before the Section on Diseases of Children at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

bad hygienic conditions which surround them, are subjected to more or less constant inoculations of large quantities of bacteria, suffer almost universally from enlargement of the lymphatic glands which drain the nose and mouth. This enlargement of the lymphatic glands is evidence of frequent and massive inoculations.

At the same time that we find enlargements of these lymphatic glands we commonly find enlarged tonsils and adenoids present. This enlargement of the lymphoid tissue is to be looked on as a reaction produced by the irritation of the bacteria. When we find an enlarged cervical gland and a corresponding enlarged tonsil, it does not mean that the tonsil is the cause of the enlarged cervical gland; consequently, immediate removal of the tonsil is not necessarily called for. It rather points to the fact that the tonsil was not able to destroy the invading bacteria, and that they have gained entrance in such large numbers that, in spite of its presence and its protective function, they have escaped through the tonsil and found their way to the gland, causing its enlargement. Neither does the enlargement of these cervical glands call for their removal. Very often the institution of better hygienic conditions results in improvement in the physical condition of the patient. In this event the child may overcome the infection and the gland may gradually return to its normal condition.

The importance of these glands is illustrated not only in the cervical group, but in the mediastinal group. The mediastinal group of glands bears the brunt of drainage in infections of the respiratory tract. In acute bronchitis, likewise in the bronchitis which accompanies whooping cough, measles, scarlet fever and smallpox, the bacteria often penetrate the walls of the bronchial mucous membrane and are strained out in the peribronchial and peritracheal lymphatic glands, sometimes producing enlargement to such a degree as to cause severe symptoms.

The enlargement of lymphatic glands in tuberculous infection in the child is well known. The enlargement of the glands of the neck when bacilli pass through the upper air passages, of the mediastinal glands when they pass through the mucous membranes of the bronchi, and of the mesenteric glands when they pass through the intestinal mucous membrane are all examples of infection; but, at the same time, these enlargements of the glands are visible evidence of a protective mechanism. In no tissue of the body are the natural defensive powers greater than in the lymphatic glands. The lymphatic structures are peculiarly active in childhood and gradually degenerate as age comes on. They are not so necessary after specific cellular defense against the various bacteria has been developed. It is significant that nature has so arranged it that the battle between the invading organisms and the child shall be fought in these structures prior to the time that a specific cellular defense has been developed.

I particularly wish to emphasize the importance of these lymphatic structures and this protective mechanism because of the tendency which is all too common today of ruthlessly sacrificing lymphatic structures in the throat and vault of the pharnyx, without giving due consideration to their importance.

I am aware of the fact that tonsils and adenoids must often be removed; but I believe that the tonsillar and adenoid tissue, unless it is producing distinctly harmful effects, should be left in situ until the child has grown sufficiently old to have come in contact with pathogenic bacteria in sufficient numbers to have developed a specific cellular defense against them. After this, the protection offered by the lymphatic structures is still important, but not so essential as during the earlier period of life.

The tonsil is also in great danger today because of the recent discovery of its importance as a focus of infection from which streptococcal metastases spread throughout the body, causing such affections as valvular heart lesions, chorea, and so-called rheumatism.

The teaching has gone forth that if we discover the primary focus of infection in a tonsil, and remove it, this will influence the metastases. I can see no reason for this being true. I can see, however, why the original focus should be removed to prevent further metastases and to relieve toxemia.

It seems quite evident that the lymphoid tissue gradually loses its protective importance. This occurs as the patient develops specific cellular defense against the organisms which are taken into the body; but, until this has occurred, such lymphatic structures as are found in the mouth and upper air passages should be preserved, if possible, in order to carry out their defensive function.

I also realize the manner in which these structures, when enlarged, produce injury to the ear, interfere with nasal drainage and favor infection of the upper air passages. I know that they will, at times, also produce cough and bronchitis; but I am fully convinced that many of the coughs and persistent attacks of bronchitis for which operations on tonsils and adenoids are done are due to enlarged bronchial glands, which are not removable, and to thickening of the bronchial wall, which have resulted from infections of these structures. Persistent colds of the nature of bronchitis call for a more extensive investigation than that of the upper air passages. Not only the tonsils and adenoids should be thought of, but peribronchial thickening and enlargement of the mediastinal glands, as well.

The importance of the lymphatic tissue, as emphasized in the discussion which I have given thus far, applies to bacteria in general, but with special emphasis to infections by the tubercle bacillus.

Tuberculosis is primarily a disease of the lymphatic glands. When the tubercle bacillus passes through the mucous membranes, prior to the time that infection has taken place, it finds itself in the lymph channels and is carried to the lymphatic gland which lies in the course of the lymph stream. There is no specific antagonism between the tissues through which it passes and the bacillus itself. No such specific inflammatory reaction takes places as is noted in later years. To be sure, many bacilli are destroyed by the bactericidal action of the lymph, but some will escape and find their way to the lymphatic glands. Those glands which are so placed in the path of drainage that they receive frequent inoculations of bacilli, now and then, find themselves unable to destroy the number which enter them, and become the seat of infection. Such infections may soon be overcome by the natural defensive properties of the lymph. If they are not, however, the bacilli multiply and produce a larger focus. As a result of this infection, toxic products are thrown out into the lymph stream, and are carried throughout the body. They find themselves, as Vaughan suggests, deposited in the tissues. Here they call on the cells to destroy them. As a result of this demand, a new function is awakened in the cells—that of destroying tubercle bacilli and their products. After the cells

have developed this property and taken on themselves a specific antibacillary defense, if bacilli become enmeshed in the tissues an inflammatory reaction occurs between them and the tissue cells, which is entirely different from the phenomena which appear prior to the time that infection has taken place. Prior to the time of infection the leukocytes and the body cells, as well as the plasma and lymph, act on the bacilli and destroy them. After infection, while the body cells and fluids still possess their nonspecific defensive properties, a specific defense is acquired by the fixed cells. Prior to the time of infection, if bacilli pass the mucous membranes and escape the antibacillary action of the lymph elements, they are carried directly to the lymphatic glands; after infection, on the other hand, they are retained in the tissues at the site of entrance and a specific inflammatory reaction is set up. Now the struggle for existence on the part of the tubercle bacillus and for its destruction by the tissue cells is fought out at the point of invasion; consequently, primary tuberculosis and metastatic, or superimposed tuberculosis, are entirely different processes. The protection is different. In one it is entirely nonspecific, depending almost wholly on the lymphatic elements. In the other it is both nonspecific and specific, depending not only on the lymph elements, but probably more on the acquired defensive properties of the fixed cells of the tissues to produce specific proteolytic ferments for the destruction of the bacillus.

In the child tubercle bacilli are often found in tonsils and adenoids. This does not mean that the tonsil and adenoid must be looked on as being sources of danger to the child. On the contrary, we must look on them as being masses of lymphatic tissue placed in these exposed regions where bacilli are apt to penetrate the mucous membranes, so that they may exert their protective influence in the destruction of such micro-organisms. The finding of bacilli in these structures means that they are passing through them and so far have not been destroyed. The finding of bacilli in the lymphatic glands which receive drainage from the tonsil and adenoid tissue shows that the latter have failed in the destruction of the bacilli, and that the micro-organisms have made their way into the deeper structures in spite of the fact that masses of lymphoid tissue have been interposed to destroy them.

The probabilities are that specific cellular defense is more active immediately following infection and during the time that the focus is active than it is some time after the infection has healed. This supposition is in accordance with clinical observation in tuberculosis. After the infection has occurred, except when the inoculation is a very large and very virulent one and the child's vitality is low, the patient is protected, for a time, from the occurrence of metastases. But after years pass by the number of metastases increase; and, by the time the second decade has been reached, we find tuberculosis spreading from these original foci and producing clinical tuberculosis in a large percentage of cases. This metastatic tuberculosis, however, differs greatly from primary tuberculosis. It shows a predilection for tissue other than glandular and assumes a chronic character even in these other structures. If, on the other hand, the bacilli are not retained in the glands of the little child prior to the time that infection has occurred with resultant specific cellular defense, acute tuberculosis will occur. The child at this period shows very little tendency to chronicity or to healing if the infection escapes from the lymphatic glands. It is not until the cells have taken on themselves this specific property of defending the body against the bacillus that we find chronic tuberculosis present. But when this has developed, unless the secondary metastases are caused by too many bacilli, the resultant infection is, as a rule, mild in character. The bacilli do not find the soil congenial for multiplication; consequently, their growth is interfered with, and the disease takes a chronic course.

SUMMARY

1. Immediately following birth the child is protected by a nonspecific cellular and humoral defense.

2. After coming in contact with tubercle bacilli, the fixed cells take on themselves a new property, that of producing specific proteolytic enzymes, whose function it is to destroy tubercle bacilli and their products.

3. The nonspecific defense is carried on largely by the lymphatic system, collections of lymphatic tissue, such as tonsils, adenoids and Peyer's patches being placed here and there where bacteria are likely to gain entrance to the tissues, so that bacteria may be taken up by them and destroyed.

4. When bacilli pass through the mucous membranes or these masses of lymphoid tissue, prior to the time that infection has occurred, they are carried directly to the lymphatic glands, in which they are destroyed or held captive. If they withstand the action of the lymph elements, they form a tuberculous focus.

5. Practically all tuberculosis, prior to the time that specific defense is created, is confined to the lymphatic glands; the exception being when large numbers of bacilli are taken into the body and find their way directly into the blood stream, by which they are scattered through the body, producing generalized tuberculosis.

6. After specific defense has been established, bacilli no longer pass readily through tissues, but are hindered by the fixed cells. A specific inflammatory reaction ensues, and the bacilli are either destroyed, or, if not destroyed, prevented temporarily, or wholly, from spreading.

7. This defensive inflammation results at times in a stimulation of fixed cells and increased fibrosis, producing encapsulation; at other times, necrosis followed by ulceration and the expulsion of the tuberculous mass.

8. The lymphatic structures are extremely important in their protective rôle prior to the time that specific cellular defense has been attained; consequently, tonsils and adenoids should be spared to the small child, unless indications for their removal are absolute.

ABSTRACT OF DISCUSSION

DR. JOHN RITTER, Chicago: I am pleased to see this attempt to stop the promiscuous removal of tonsils. The tonsils proper and the lymphoid tissue all around, in fact, the whole Waldeyer ring, are really infantile organs and bodies, and they disappear about the fifteenth year, or about puberty, when they have fulfilled their purpose. As Dr. Pottenger has told us, this lymph tissue at the entrance stops the bacilli from infecting the body of the child. In the child we have chiefly tuberculosis of the glands but the bacilli usually do not pass very far from the glands of the mouth. When we have tuberculosis passing on into the bronchial glands, then we know that undoubtedly some of those bacilli have passed through the trachea into a bronchus and have pressed onward into the lung proper or into the mediastinal glands. This is the type of tuberculosis peculiar to children. I am emphasizing once more the need for care in diagnosing pulmonary tuberculosis

in children. Pulmonary tuberculosis is much more fatal in childhood and much more acute than in the adult. We see very little pulmonary but a great deal of bronchial gland tuberculosis in children. The thing for us to do is to emphasize particularly the guarding of the entrance of the throat and to save the tonsils and to spare this guarding lymphoid tissue as long as we can. When a tonsil is diseased, full of openings and crypts, then bacilli may get in and be held there and cause disease; still they should be treated and taken care of, and should not be removed until absolutely necessary. In a great many cases where the tonsil has been removed, four, five or six months afterward we find active pulmonary tuberculosis. We may cause activation of an old process or the favoring of a latent into an active process by lowering of body resistance.

Dr. John Zahorsky, St. Louis: We must recognize in children a physiologic process of acquiring immunity to all pathogenic germs. The tonsils make the child immune to a great variety of infections. Infections of the nose, throat and glands are very common in young children. After they get to the age of 8 or 9 they are less susceptible—they are able to resist the infection. A very young baby has to go through all sorts of reactions to become immune. The tonsils are the first line of defense. If you remove much of the Waldeyer ring you have a greater susceptibility of the deep structures, particularly the lungs. In the case of a young child suffering from large tonsils and repeated sore throat, if the tonsils are removed, afterward he would have bronchitis and bronchopneumonia rather than tonsillitis. We must conserve Waldeyer's ring. We must learn to treat the tonsil, not remove it. If infected with pus, get the pus out, but do not remove the tonsils if it can be avoided. The young child needs its tonsils. The pediatrists should say whether or not they should be removed.

Dr. J. I. Durand, Seattle: The tonsil is a lymphatic gland which through some developmental fault has been opened to the exterior instead of being covered as all other glands are. The original tonsil must have been submerged. In the present condition the tonsil is wide open, in a position to be infected readily. Every crypt in the tonsil may become a culture tube in which bacteria and toxins are elaborated, to threaten the organism. I do not believe in taking out all tonsils, but it is often difficult to tell when they should be removed and when not. I am inclined to think we err too often in not taking them out. The tonsil is undoubtedly one of the organs of defense, but it seems to me that a perfectly smooth wall of scar tissue is a better defense against infection than a wide open gland such as the tonsil. Again does our clinical experience carry out this idea that the tonsil is put there to be a perpetual source of vaccination and bring immunity in that way. Do we not see less infection in children who have had the tonsils removed? Is it not our experience that the general resistance of the child is increased after removal of the tonsils? If the tonsil is simply a lymphatic furnishing the first wall of defense against infection, why are not the bronchial glands just as good?

Dr. St. George T. Grinnan, Richmond, Va.: In Richmond there are about 40,000 negroes. We have a negro dispensary there, and I do not think I have ever seen more than one or two cases of tonsillitis in young negroes over 6 or 8 years old. There is a large percentage of tuberculosis of the lungs. Some time ago I saw a young negro with a temperature of 104 F. He had extremely extensive tuberculosis of the lungs. There was another child about 3 years of age. I asked the mother if the other child was sick, and she said "No." I took its temperature and it was 104 F. She died first. We have much tonsillitis there among the white people. It is rare to find tuberculosis of the lungs among the younger white children. A large number have glandular tuberculosis, particularly at the angle of the jaw and the cervical glands.

Dr. F. P. Gengenbach, Denver: I would like to ask Dr. Pottenger how much importance he attaches to the persistent enlargement of the anterior cervical glands? I appreciate that we cannot always tell by the appearance of the tonsils whether they should come out, but I do consider the persistent enlargement of the cervical glands of importance. I also want to ask as to the value of removal of the tonsils in cases of tuberculous adenitis.

Dr. C. G. Kerley, New York: Dr. Pottenger is rather lenient with a diseased tonsil. A tonsil that is capable of harboring tubercle bacilli or any other bacteria should to my mind be removed, regardless of the age of the patient. I prefer that tonsils be not removed in very young children if it can be avoided with safety to the patient for the reason that the results of enucleation of the tonsils in the very young have not always been brilliant in my patients. The tonsil performs a function in the development of the throat. I have seen adhesions of the pillars and deformities result when early tonsillectomy had been performed. A point regarding adenoids and the presence of diseased tonsils is frequently overlooked. In diphtheria, measles, scarlet fever and influenza, they furnish a favorable culture field for infection which we always have in the throat. It is the child with adenoids and diseased tonsils who gives us our cases of acute otitis, mastoid diseases and sinus thrombosis, therefore as a prophylactic measure, enucleation of diseased tonsils and adenoids is to be advised regardless of their effects in other ways. I have never seen a case of tuberculous adenitis in a child whose tonsils were properly removed. I refer, of course, to complete removal of the tonsil and capsule.

Dr. F. M. Pottenger, Los Angeles: Dr. Kerley states that when a tonsil has been properly removed he has never seen a case of tuberculous adenitis in the cervical glands which receive drainage from that organ. I look on the infection of a gland where the bacilli have passed through the tonsil as indicating that the bacilli have simply passed through the first line of defense and taken the second trenches. It does not mean that the tonsil is a factor in causing the infection, but that, in spite of the tonsil, bacilli have been able to break through to the glands. I agree with Dr. Kerley absolutely in his attitude toward tonsils which are definitely diseased. They must be removed unless the focus can be removed otherwise. Answering Dr. Gengenbach's question, if I had a patient with persistent enlarged glands which were giving out bacteria into the deep structures and producing metastatic infection, the infection would have to be relieved or the gland removed. The principal defense of the child at birth is in the lymphoid structures which manufacture lymphocytes; but, as he gradually comes in contact with various bacteria, he immunizes himself. He builds up a specific power in his cells to overcome bacteria. The lymphatic structures manufacture leukocytes and are the greatest protective factors during this early period when the specific defense is absent, and we ought not ruthlessly sacrifice them. We ought to give the child this protection as long as necessary. It has been mentioned that the tonsils are open glands, and, from their structure they are apt to be infected, and consequently are sources of danger. What about Peyer's patches? We do not take them out, yet they are open glands. It is possible that these glands are furnished with crypts that they may take in bacteria more readily; because there is no place in the body of the little child where bacteria can be destroyed so readily as in these lymphatic structures. They become infected; but, as a rule, they do not become seriously infected until the time when they are no longer necessary to the defense of the child. Their period of greatest activity is when the child needs it most. After the child has come in contact with the various infectious bacteria and built up his specific defense, the lymphatic tissue becomes less important and atrophies. The point that I wish to emphasize is, if possible, the child should be given advantage of the natural protection furnished by the lymphoid tissue, until specific defense has been attained. If the tonsils and adenoids become infected and become sources of metastatic infection they must be removed. If they make pressure and threaten injury to the ear, or interfere with nasal drainage, it may be necessary to remove them, but they should not be removed in the small child without cause. I would not remove the tonsils in case of tuberculous cervical adenitis. We rarely see tuberculosis of the tonsil, and when we do it is usually an accompaniment of an advanced generalized tuberculosis. When tonsillar tissue shall be removed it is a subject that requires judgment. Each case should be considered by itself; but the rule should be to give the child the benefit of this protection until he is able to build up the specific cellular defense which protects him in later life.

THE USE OF BOILED MILK IN INFANT FEEDING AND ELSEWHERE*

JOSEPH BRENNEMANN, M.D.
CHICAGO

In our progress upward, whether in religion, in economics or in the science and art of infant feeding, we advance by epochs, and often the gospel of one epoch becomes the heresy of the next, only to become again the gospel in the light of some newer truth. In the first flush of bacteriologic activity, the idea that infantile diarrheas were infectious and that milk carried pathogenic micro-organisms naturally led to sterilization of the baby's milk by heating it. Then scurvy intruded itself, and pasteurization at lower heat, yet high and long enough to destroy pathogenic germs while influencing the milk less, took its place. But pasteurization was still held as only less objectionable, and for the same reasons, than sterilization, and offered serious technical difficulties. There naturally followed a demand for a milk clean and fresh and nearly enough germ free to be safe without heating. By analogy with human milk, too, raw cow's milk seemed obviously preferable and became our standard.

Increased experience with boiled milk, especially by those who had long used raw milk, led to the growing conviction that boiled milk is more easily digested by the dyspeptic infant and hence by the well infant, than is raw milk, that it is not accompanied in any serious measure by the dangers that had been attributed to it and that it is obviously safer from an infectious standpoint than any raw milk could possibly be. It was then shown that raw milk and boiled milk were not identical physiologically, and that this difference probably explained the unequal digestibility of the two milks. And so today, if one may read the times aright by the literature and the practice of an increasing number of pediatrists, we have entered on an epoch in which boiled milk is looked on with favor for both physiologic and bacteriologic reasons. In all of these years Jacobi alone has always used boiled milk.

There has naturally grown up in this country a strange transitional medley of ideas of different men who follow these changes with an unequal pace, much to the amusement and often unconcealed disgust of the nonpediatric physician, who sees in our progress only a change from one idea to another. Our textbooks nearly all favor raw milk, if pure. The literature is increasingly more favorable toward boiled milk. The newspaper and magazine writers, who have become a tremendous factor in popular education, get their inspiration from standard textbooks and dwell on the evils of boiled milk and the dangers of raw milk, and advocate pasteurized milk as a popular measure. Boards of health, city councils and philanthropists keep the same pace, and the poor mother who reads the popular treatises on the baby and the newspaper and magazine articles that seem so authoritative is amazed at the physician who tells her to boil the baby's milk, and especially so if she has already provided herself with certified milk! In European countries, like Germany and France, on the other hand, milk is boiled with hardly a thought of raw milk as a safe infant food.

The ultimate test of any therapeutic measure in infant feeding is the baby himself, the living, clinical, digesting baby, that often laughs at our theories and weeps over our science. The question of whether boiled milk has any overweighing superiority over raw milk, or vice versa, cannot be determined by such didactic considerations as the fact that raw milk teems with bacteria, while boiled milk is relatively sterile; that one is a living, the other a dead food; that one undergoes many changes in the process of heating, while the other undergoes a few less in the process of keeping; that one coagulates in the stomach in large, hard curds, and the other forms fine, soft curds; nor yet by the sum total of all of these considerations. The baby in his own little way decides which is the better of these two poor substitutes for his natural food, and leaves it to us to find the explanation. Empiricism comes first and science follows with an explanation. It is for that reason that, in the science and art of infant feeding, art is long and science short.

With this thought ever in mind, our subject naturally unfolds itself under four heads:

1. Does raw milk offer advantages over boiled milk?
2. Does boiled milk offer advantages over raw milk?
3. Does pasteurization solve the problem?
4. Does certified milk solve the problem?

The obvious argument in favor of raw milk is a priori that human milk is raw. And yet the objection intrudes itself that cow's milk is not human milk, any more than raw corn and oats, the natural food of the older calf, are the natural food of the child. What scientist shall tell us that, per se, cow's milk becomes practically any more unnatural because it is heated, or that heating imparts to it a greater degree of unnaturalness than does prolonged refrigeration, the development of a host of bacteria, the unavoidable chemical change that takes place in kept raw milk, or the addition of barley water or sodium citrate, all of which are so foreign to the baby's natural food, which flows warm and sterile and immediately into its mouth from its mother's breast? The baby alone can tell us which is the more unnatural.

Raw milk again contains ferments, vital principles, vitamins, or what not, the destruction of which is said to injure the milk in some vital particular. And yet here we enter on hazy territory. Are those of one species as vital in another species as in their own, as we know, for example, that the antitoxins and antibodies of milk are specific? Or do they retain their properties under the conditions that are inseparable from an unnatural and nonspecific food in a sufficient degree to offset other advantages that might come from heating the food, for example? Or is there tangible evidence, either experimentally or as shown in the reaction of the baby, that boiling for a short time destroys these properties in a sufficient degree to constitute a noteworthy menace? Those of us who have used raw milk for years, and then milk boiled for from two to five minutes for an equal number of years have been able to make out no difference that could be attributed to an absence of such vital principles. Nor do European clinicians, notably the French and Germans, who use boiled milk almost exclusively, report any unfavorable effects as compared with our own clinicians who use raw milk.

The only seeming exception to this is scurvy, to which ultimately all our discussions along this line revert. Not so much that scurvy is legitimately adduced as an argument against boiled milk, as that it is always mentioned in that connection, and has

* Read before the Section on Diseases of Children at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

thereby assumed the rôle of an argument to the superficial reader. The discussion of scurvy has furthermore become so inseparable from the report in 1898 of the committee of the American Pediatric Society, appointed to investigate infantile scurvy in America,[1] that that report has gradually been given an unintended and unwelcome prominence in support of the idea that boiled milk is seriously scorbutic. This report for its comprehensiveness, for its interpretation of difficult data, for its finality up to the present time, and for the fairness and even mildness of its conclusions, to quote Morse,[1] should stand as a model for those who glibly hark back to it as an argument against boiled milk. The final statement of this committee deserves to be quoted in full in this connection, as follows:

> The conclusions to be drawn from this combined study of etiology and treatment seem justifiable only to the following extent:
>
> 1. That the development of the disease follows in each case the prolonged employment of some diet unsuitable to the individual child, and that often a change of diet, which at first thought would seem to be unsuitable, may be followed by prompt recovery.
>
> 2. That in spite of this fact regarding individual cases, the combined report of collected cases makes it probable that in these there were certain forms of diet which were particularly prone to be followed by the development of scurvy. First in point of numbers here are to be mentioned the various proprietary foods.
>
> 3. We find that in general the cases reported seem to indicate that the farther a food is removed in character from the natural food of a child, the more likely is its use to be followed by the development of scurvy.

One of the committee of five begged to be excused from subscribing to the report, because of "lack of opportunity to study the report requisite for a subject of so great importance." Another member handed in a minority report containing the clause: "Sterilizing, pasteurizing or cooking of milk food is not per se responsible for the scurvy condition." In the discussion that followed there was considerable opposition, led by Christopher, against publishing any "conclusions" whatever. In the intervening eighteen years we would have honored this report more by pointing out fallacies than by permitting it to be given the rôle of an argument against boiled milk as a noteworthy factor in the production of scurvy. And yet no single decisive addition has been made to it, only added emphasis on certain phases, such as the importance of the individual, the rôle of the canned food, the possibility of an infectious nature, etc., leaving the specific agent, even whether active or passive, yet to be determined.

It is a strange trait of human nature, to which the pediatrician is no exception, that we highly respect our own views and pay little attention to what others equally qualified have found in other lands and with other languages. Reports from France and Germany, where boiled milk is used almost exclusively, seem to indicate that they have less scurvy than we. The incidence of scurvy with us is of course not due to the use of raw milk, nor yet of boiled or of pasteurized milk, but in all probability to the widespread use of certain proprietary foods. This does not affect, however, the reports of French observers like Budin, Variot, Anderodias, and others, who tell us that they have fed thousands of babies for long periods of time on milk boiled not five minutes or less, but even thirty or forty minutes, without producing a single case of scurvy. To say that these reports date back to a time when scurvy was not recognized, as if scurvy could possibly fail to be recognized by any pediatrician who is looking for it, hardly seems justifiable. Thus in 1910 Anderodias[2] made the following statement in favor of sterilized milk, which is significant in this connection, as well as in its strange provincialism: "In the consultations for nurselings in which we feed sterilized milk, as in those of Budin, Variot, and Maygrier, one has yet to see an infant with scurvy, while abroad in England, and especially in America, where laboratory milk is commonly employed, the cases of scurvy are very frequent."

Even if boiling milk does rob it in part of some antiscorbutic property, and it would be unwise to deny that prolonged boiling may, or does, the rarity of scurvy, its magic-like curability, its absolute preventability by the use of small amounts of orange juice, and the fact that it has been cured with the usual rapidity by the use of boiled milk alone[3] would seem to deny to scurvy that commanding position which it has here arrogated to itself. The fact that we use orange juice after the third or fourth month may account for the fact that we have had no scurvy in our own patients fed on boiled milk. This would only serve to emphasize the trivial nature of scurvy if it can be prevented by so simple a dietetic measure, which has always commended itself even without any reference to scurvy.

The possibility of less striking minor conditions analogous to scurvy, such as anemia, or underdevelopment, or rickets, could easily be imagined as resulting from a food denatured by heat. And yet is there one particle of evidence to this effect on which one can really place a finger? Hardly a single textbook, British, American, French or German, even mentions boiled milk in connection with rickets or such allied conditions.

Does boiling, with its formidable array of changes in the milk, such as partial coagulation of lactalbumin, caramelization of some milk sugar, its action on the casein, inhibiting coagulation with rennin, etc., lessen the nutritive value of cow's milk as an infant food? Again we must say that cow's milk is not human milk, in which the loss would be unquestionable, and that the benefits derived from boiling an unnatural food may just as reasonably be greater in one direction, for example, in rendering the curd of cow's milk more nearly like that of mother's milk, than the harm done in another. Again we must appeal to the baby in so empirical a question, and I can give no better summary of its interpretation than to quote the well-known, comprehensive conclusions of Janet E. Lane-Claypon,[4] whatever one may think as to the limitations of such a method of investigating the matter. In the final summary she states that "such small differences as have been found in the nutritive values of raw and of boiled milk have been in favor of boiled milk."

The last, and, among mothers, the almost universal objection to boiled milk is that it is constipating. This

1. The American Pediatric Society's Collective Investigation on Infantile Scurvy in North America, Arch. Pediat. July, 1898, p. 482.

2. Anderodias, J.: La pratique des maladies des enfants, J. B. Ballière et Fils, Paris, 1910, p. 315.

3. Brennemann, J.: Boiled vs. Raw Milk, an Experimental Study of Milk Coagulation, Together with Clinical Observations on the Use of Boiled and Raw Milk, THE JOURNAL A. M. A., Feb. 22, 1913, p. 575.

4. Lane-Claypon, Janet E.: Report to the Local Government Board on the Available Data in Regard to the Value of Boiled Milk as a Food for Infants and Young Animals, Darling & Son, Ltd., London, 1912, No. 63, New Series, p. 1.

objection might well be answered in four words, "Thank God for constipation!" The baby that is fed on cow's milk and is constipated is digesting its food perfectly. The physician is as happy over a formed stool as the mother is sad. The only exception is fat constipation, the *Milch Nähr-schaden* of Czerny, a disturbance due to fat, and this occurs with both boiled and raw milk. To my mind it occurs more regularly with boiled milk than with raw milk, and this seems to me to explain why fat constipation is so much more a vital part of German literature than of ours. Czerny[5] considers it the regular reaction of the infant to too much milk hence *Milch Nähr-schaden* and not *Fett Nähr-schaden*, and his pupil Stolte considers the milder firm Seifen-stühle, and to my mind rightly so, as the desideratum of artificial feeding with cow's milk. With raw milk digestive disturbances are more apt to occur before enough milk can be given to produce a decided soap stool; with boiled milk we can give more milk without producing acute disturbances, and the more serious picture of *Milch Nähr-schaden*, as described by Czerny, can more readily follow if we overstep the baby's tolerance for milk. In our former experiences with high fat and low protein mixtures it was fat diarrhea and not fat constipation that we dreaded.

That boiled milk in proper therapeutic amounts is to an annoying extent more constipating than raw milk I have not been able to satisfy myself. In digestive disturbances with loose stools it is certainly more constipating, or shall I say more easily digested? Or is it not more accurate to say that raw milk is here more laxative, that is, harder to digest, than that boiled milk is more constipating. Even if boiled milk is somewhat constipating, this is so minor an evil as compared with even moderately loose stools, which in the cow's milk fed infant are incompatible with progress, and the condition is so easily rectified by the various measures with which we are familiar, and so naturally corrects itself as the older infant gets a more varied, less milk, diet, that it is hardly worth consideration if there are benefits that more than compensate.

DOES BOILED MILK OFFER ADVANTAGES OVER RAW MILK

The first and most obvious advantage is bacteriologic, a relative freedom from pathogenic microorganisms, which is primarily the object of boiling. The relationship of bacteria to gastro-intestinal disorders is not a closed subject, but it would be a wild flight of the imagination to think that they were not of decided importance, and in ileocolitis we know that we have an infection. Normal raw milk, furthermore, apparently contains certain properties that determine a bacterial growth that is not pathologic, and boiling milk destroys this property, or destroys the normally developing bacteria so that the milk is then subject to decomposition, which raw milk is probably not. Such decomposition might lead to the development of toxic products. Outside of the fact that such a danger is more of theoretical than of practical interest is the evident fact that this danger is avoided by not having the milk boiled until it reaches the consumer, the only measure that commends itself.

We are told, on the other hand, that boiling milk destroys bacteria, but not their toxins, but are these less harmful in raw milk where the bacteria too are permitted to live? Nor does boiling milk carry with it the idea that we shall relax our efforts in favor of clean fresh milk that is relatively free from these bacteria and their toxins. The occurrence of such toxic products in normal milk is again interesting, rather than practically important. Tyrotoxicon was discovered once, and to my knowledge, never again. And is not real buttermilk made from milk that has soured, or spoiled naturally, known to be one of our greatest therapeutic measures in gastro-intestinal disorders?

When we leave the gastro-intestinal tract there is no longer any doubt as to the danger of infection from milk-borne bacteria. Epidemics of scarlet fever, typhoid, streptococcus sore throat, dysentery and other diseases have been reported in great number. These could not occur if the milk was boiled in the home. The possible transmission of tuberculosis through raw milk, with its far-reaching possibilities at least, backed by authority that cannot be disregarded, need only to be mentioned. The very unsettledness of this problem tends toward laxness, whereas its possibilities demand the same precautions as if its maximum danger were established. Heating the milk alone removes this possibility in a manner that even efficient universal tuberculin testing of cattle could not approach.

The second advantage, to my mind, is a physiologic one. Even though we use raw milk as a routine, when the baby has a diarrhea or an indigestion, we boil the milk. Why? Because boiled milk is constipating. Why? Do any of us know of any better reason than because boiled milk is more easily and quickly digested, liquefied, and absorbed than is raw milk? And if it is more easily digested during digestive disturbances, then why not also in health? Then why not feed it as a rule, unless there is some overweighing objection, which we have failed to find?

After having used in succession raw and boiled milk, each almost exclusively for six or seven years, there is no doubt in my mind that babies are, in general, harder to feed on raw milk than on boiled milk, and that the explanation is physiologic, not bacteriologic. The most important symptoms that characterize this difference in digestibility are, in our experience, as I have elaborated elsewhere,[3] diarrhea, or at least loose, slimy, imperfectly digested stools, vomiting, colic and discomfort, and in many cases, the occurrence of hard, bean-like tough casein curds[3] in the stools.

The explanation for this difference in digestibility seems clearly to be in the relative coagulability in the stomach of the casein of raw and of boiled milk. Raw milk has been shown to coagulate rapidly in the stomach in large tough masses.[3] These become increasingly larger and harder for about two hours, then yield gradually to peripheral digestive liquefaction. At the two hour period many of these curds are as large as golf balls, and can be thrown on the floor without being broken. Several times in my series of experiments[3] they could not be returned from the stomach by vomiting, even though one was delivered that was ½ to ¾ inch thick, and was five inches long, extending at right angles at one end for 2½ inches, and for 1½ inches at the other! At the end of five hours there were still curds in the stomach of even greater hardness than before, and as large as almond kernels, closely resembling in every way the hard curds of infant stools. In no single experiment, nearly 100 in all, was there ever an exception to the general facts as here stated. Boiled

5. Czerny, A.: Des Kindes Ernährung, Ernährungs-störungen, und Ernährungs-therapie, 1909, Franz Deuticke, Leipzig und Berlin.

milk, on the other hand, with equal regularity formed fine, soft fragile porous curds of the consistency and appearance of a good custard finely broken up. These, too, increased in size and density for about two hours, but so much less than those of raw milk that they never appeared larger than very fine gravel. The lesser density, the greater fragility and porosity, the lesser distance to be traveled by peripheral digestion, for curds do not soften and disintegrate en masse during digestion, would lead me to think that the boiled milk curds offer digestive advantages over those of raw milk that are of determining significance. I cannot refrain from again emphasizing, not alone to the pediatrist, but also to the internist, who feeds patients, with gastric and duodenal ulcers, with typhoid fever, pyloric stenosis, or any other condition in which a soft food seems indicated, that raw cow's milk is only in appearance a liquid food. In the stomach itself it becomes one of the most peculiarly insinuatingly, insidiously, increasingly, uniquely solid foods that we can give to a patient, and one that was manifestly intended only for a calf, as has been so well emphasized by Chapin, to prepare the way for its later diet of corn and oats and grass. Boiled milk or milk modified in the many other ways so familiar to the pediatrist is relatively a liquid food.

But as before, the ultimate test is the baby. Does the baby, in spite of the fact that nowhere else is a hard, tough, rubbery mass as large as a walnut or a golf ball considered as easy to digest as the same substance in a softer finer state of divisions; does the baby form an exception and digest equally well the large and hard mass as the fine soft mass? Does it digest a distance of a half inch as quickly as a distance of one-sixteenth of an inch, to say nothing of relative density and porosity? Is it not peculiarly significant in this very connection that Finkelstein[6] warns us, and have we not confirmed it over and over again and watched over it most carefully, that albumin milk must contain only most finely divided, almost invisible curds; that with coarsely granular albumin milk we can safely expect dyspeptic symptoms? Whether it is a question of the relative lengths of the radii through which digestion must travel or of some irritating effect of a foreign body leaves us indifferent.

And is it not also of significance in this connection that nearly all of our therapeutic measures that aim to adapt cow's milk to the baby, no matter what our theoretical purpose may be, have one thing in common, and only one, and that is to make the large, hard curd of cow's milk more like the small soft curd of mother's milk? What other explanation could we find for the fact that for the same condition different physicians will prescribe mother's milk, diluted milk, boiled milk, condensed, powdered or dried milk, pasteurized milk, malt soup, milk that has been precoagulated and finely divided by agitation, a process that prevents recoagulation, as I shall show in a paper soon to be published;[7] precoagulated, either by acids, as in buttermilk, or by rennin, as in pegnin or chymogen milk, or by both, as in albumin milk; milk alkalinized with sodium or potassium salts; milk of magnesia or lime water; citrated milk, so much in favor in England and with some of us; milk diluted with cereal water, so long advocated by Jacobi, and so effective as a curd attenuant; high fat and low protein, or cream mixtures; whey and the split protein; and so on to the end of the list?

The most concrete, discussable evidence of the relative indigestibility of raw and of boiled cow's milk, as interpreted by the baby, is the hard curd of the stools. Babies fed on raw milk will ever and anon, as pointed out independently by Ibrahim[8] and myself,[9] and since amply confirmed by others, show hard, bean-like curds in the stools, which bear no resemblance to ordinary fat curds. Commonly they occur in decidedly undigested, frequent stools, and are then whitish or pale greenish, like the rest of the stool, large and relatively soft, and resemble very minutely the gastric curds of raw milk. If the stool approaches the normal in consistency, and what is of greater importance, in frequency, the curds are smaller, harder and more bean-like, and have now acquired an amber color from their yellowish or brownish environment.

If the milk is introduced beyond the pylorus with a duodenal catheter, as has been done by Hess,[10] the curds no longer appear in the stools of a baby that has produced curds when fed into the stomach. In this way the large gastric curds are avoided. That smaller ones are formed in the intestines which are, however, completely digested, is probable from the fact that normal feces will coagulate milk and that hard curds, indistinguishable from those here under discussion, are formed when raw milk is injected into the rectum of an infant.[3] There seems little question that these hard curds of infant's stools are the gastric curds of raw milk that have not been completely digested. In every case in which I have seen them, experimentally or otherwise, they have, without exception, disappeared when the same milk formula was boiled two to five minutes. With them has disappeared the indigestion, except in those cases that were so severe that the milk, even though boiled, had to be cut down or withdrawn entirely for a short period, because the sugar and fat it contained could not be tolerated under the conditions present and kept up the indigestion.

Two exceptions have been taken to these statements, which in no way detract from their practical significance:

First, it has been claimed that hard curds not infrequently occur in normal stools. This has not been my experience. Almost without exception they occur in dyspeptic stools in direct ratio to the degree of indigestion. Occasionally they occur in a nearly normal stool, when there are three or four stools instead of a normal one or two, in the twenty-four hours, and when they are a little soft and off color. The interpretation of "normal" introduces an individual factor, which here notoriously lacks precision. When they occur in nearly normal stools they represent an unstable state of equilibrium, which is a frequent occurrence in infant feeding; either they disappear, and with them the indigestion, or else the indigestion becomes worse and with it the curds become larger, whiter and more abundant. I believe that isolated curds can and do occur at times in an otherwise normal stool, in those cases in which the normal run of curds are completely digested, but an occasional accidental curd of the first magnitude, a frequent occurrence in

6. Finkelstein, H., and Meyer, L. F.: Ueber Eiweissmilch, Jahrb. f. Kinderh., 1910, xxi, 655, 683.

7. Brennemann, J.: The Coagulation of Cow's Milk in the Human Stomach (to be published).

8. Ibrahim, J.: Kaseinklumpen im Kinderstuhl in Zusammenhang mit Rohmilchernährung, Monatschr. f. Kinderh., 1911, x, 55.

9. Brennemann, J.: A Contribution to Our Knowledge of the Etiology and Nature of Hard Curds in Infants' Stools, Am. Jour. Dis. Child., 1911, i, 341.

10. Hess, A. F.: The Pathogenesis of Casein Curds in the Stools of Infants, Am. Jour. Dis. Child., 1913, v, 457.

both gastric and beaker experimentation,[11] will not have time to be completely digested and passes through, as would a penny. In producing stool curds experimentally,[9] and I have never failed to produce them in any baby in whom I have tried it, by giving him enough raw milk, the stools have always become dyspeptic, and became so in proportion as the curd output was abundant. Occasionally the indigestion became sufficiently severe that the experiment had to be discontinued quickly by boiling the milk, with an invariable disappearance of the curds and of the indigestion. In many babies it would be wholly unjustifiable, experimentally or therapeutically, to change the milk from boiled to raw, and in nearly every case one can foretell with great accuracy the probable result of such a change, both as to curd output and as to indigestion. Never anywhere in infant feeding have I seen an unfavorable digestive effect from changing raw milk to boiled milk.

Second, they are said to occur on boiled milk. I have seen a very few times, very small and very few thread-like, rather soft hard curds, as an isolated occurrence in the stool of a dyspeptic infant fed on boiled milk, never as a continued occurrence. The individual factor in what constitutes boiling, as to how, and how long it is done, whether in a double or a single boiler, the actual degree of heat employed, etc., might easily be a deciding factor. There is, furthermore, no reason why in patients with a diarrhea the rapid peristalsis should not sweep through even the finer gastric curds of boiled milk. Only those who have had no extended practical experience along these lines could permit this to detract from the statement that, in essence, the hard curd is a raw milk phenomenon.

Hard curds will occur in the experience of different men in proportion to the amount of casein in their raw milk mixtures. When we used raw, high fat, low protein whey mixtures we saw them only as an occasional curiosity in diarrheal stools. With simple raw milk and water dilutions, I am sure that we would find them frequently with such concentrated mixtures as we now use. Thus Ibraham[8] changed the milk from boiled to raw milk in the regular food of ten cases that had normal stools, and found hard curds in three of them after the change. During the fat-free milk flurry, while we still used raw milk these curds reached their maximum incidence, both because we naturally used more milk in our mixtures and only in dyspeptic infants, and because of all hard curds the fat-free milk curd is the hardest and largest.[7] Now again with the use of boiled milk the hard curd has become a negligible factor in our own cases. We see them only in the cases of others that have been fed raw milk. My own experience has led me to think that hard curds do not presuppose an inherently peculiar gastric juice, but rather that they occur in any baby when digestion for the time being is not perfect; or in any otherwise normally digesting baby that gets more raw milk than it can stand.

Shall we conclude from all this that the casein of cow's milk is hard to digest by the baby as we all once taught so positively? And by "casein" I mean the casein of raw milk, because boiled milk casein is modified casein, just as truly as if we used sodium citrate or barley water. To my mind this question admits of only one answer: positively yes. When milk is boiled or otherwise sufficiently modified, as by the use of sodium citrate, milk of magnesia, or adequate dilution, we too see no clinical picture that we can recognize as casein indigestion. We should therefore no longer speak of the digestibility of milk unless we mean raw milk, but of the digestibility of raw and of boiled milk. For all of these reasons I venture to record my surprise when in a recent symposium in his contribution Holt[12] makes the statement without any qualifications along these lines: "When the question is asked, What are the symptoms of protein indigestion, or intolerance? we are compelled to reply that at present we cannot mention any definite symptom, or group of symptoms, which we can positively attribute to the proteins in the sense that we can attribute other definite symptoms to the fats and to the carbohydrates."

Whether the casein is the active agent in raw milk indigestion is perhaps an open question. Possibly some other constituent of raw milk causes the indigestion, with the resulting nondigestion, rather than an indigestion of the casein curds. It is my own conviction that the casein is as a rule the active agent. The digestive disturbances that follow the eating of corn, grapes, apples, orange pulp, peanuts, etc., are, to say the least, suggestive. And our standard therapeutic advice that food must be thoroughly masticated and finely divided is either of no value or else it is of great significance in this connection. The fact that the indigestion disappears when the milk is boiled can, in our present state of knowledge, be explained only by the fact that the casein is so modified by boiling that it no longer presents any difficulty in digestion. No other constituent, so far as we know, is changed in any manner that could explain this difference in the digestibility of raw and of boiled milk. Whether we have a casein indigestion or nonindigestion of casein does not affect our main contention that raw milk causes digestive disturbances that can be removed by boiling the milk, and that this difference is probably causally connected with the one tangible difference between raw and boiled milk, namely, the nature of the curd formed in the stomach.

In spite of the opinion that the casein is usually the responsible factor in raw milk digestion, and that the hard curds of the stools are the most evident symptom of casein indigestion, it seems to me unwarranted to classify the occurrence of hard curds in the stools alone as "casein indigestion," as is done in some quarters, as if the casein in all the cases actively caused the hard curd, as we know that the fat causes a soap stool or the sugar a fermented stool. In a dyspeptic infant with hard curds in its stools removing the sugar from the raw milk mixture, thereby lessening the frequency of the stools and slowing peristalsis, may cause the hard curds to disappear, that is, a sugar diarrhea may cause a nondigestion of the casein. Furthermore, the same infant that has a "casein indigestion" will digest perfectly the same casein or larger amounts, in the same concentration, if it is modified by boiling or by the use of sodium citrate; that is, the "casein indigestion" should have been called a raw milk casein indigestion, for it no longer is a casein indigestion when the milk is boiled. Again, casein indigestion, to my mind, most commonly manifests itself in discomfort, colic, vomiting, with or without dyspeptic stools, and without the presence of hard curds, that is, we have casein indigestion without "casein indigestion." The occurrence further of an occasional

11. Footnotes 3 and 7.

12. Holt, L. Emmett: The Digestibility of the Proteins of Milk and Their Rôle in Infant Nutrition, Arch. Pediat., 1916, xxxiii, 13.

hard curd in a normal, or nearly normal, stool is no more an evidence of "casein indigestion," for reasons given above, than is the presence of a piece of incompletely digested tough beefsteak an evidence of beefsteak indigestion. In both instances an unusually large hard mass of food passed through the intestinal tract before it was completely digested.

In our practical experience we feel that we can safely give much larger amounts of milk and more concentrated solutions when we use boiled milk than when we use raw milk. We feel that we can begin feeding nearly any healthy baby of any age with one-half milk and one-half diluent, and we give straight milk much earlier than formerly. Possibly the simplicity of such ideas is the only thing that commends them, as compared with other methods that lead to the same result, but simplicity is a much longed for factor in infant feeding. We feel, too, that we approach the baby with a greater assurance of immediate success if we boil the milk than if we use it raw. Especially is this true in digestive disorders, and in all institutional work where babies are massed together. That a large percentage of healthy babies will apparently digest equally well raw and boiled milk within therapeutic limits is, of course, evident. We nearly all, however, use some method of modifying the curd of raw cow's milk, whether we dilute the milk or use barley water, or lime or sodium citrate. In our experience boiling commends itself as an excellent casein modifier that at the same time effectually disposes of the bacteriologic problem.

DOES PASTEURIZATION SOLVE THE PROBLEM?

If pasteurization did not offer almost insurmountable technical difficulties in the very homes in which it is most needed, or if commercial pasteurization were reliable, then it might at least solve the bacteriologic problem. The physiologic problem remains unchanged as pasteurized milk is in this respect essentially like raw milk.[8] Commercial pasteurization would still be open to the objection that such milk would have to be kept for at least twenty-four hours, subject to decomposition or other abnormal bacterial activity. The relative activity of antiscorbutic or other allied properties in pasteurized and in boiled milk, the actual idea back of pasteurization, remains to be measured. In our present state of knowledge it can hardly offset the manifest advantages over pasteurization of boiling milk in the home.

DOES CERTIFIED MILK SOLVE THE PROBLEM?

There can be but one opinion on the question of whether a food for infants that is an excellent culture medium, that is furthermore subject to many opportunities for conditions favorable to bacterial multiplication, should be safeguarded by all the means advocated by our milk commissions. Certification cannot, however, be imposed without making the milk so expensive that it is beyond the reach of that vast majority who need it most. That ordinary milk boiled in the home is a safe food for infants in this very social stratum has been abundantly proved by the Infant Welfare Society of Chicago, where such home-boiled milk is used in the large majority of cases with almost incredible results. Bacteriologically, certification alone does not even approximately put certified milk in the same class as boiled milk. It offers the advantages that cannot yet be measured of being biologically active, as compared with boiled milk. Physiologically it is still raw milk, and that is why many of us boil certified milk.

In conclusion I wish to say that I in no way undervalue the very definite disorders that are due to the fats, the sugar and the salts of cow's milk, when used as an infant food. I am inclined, however, to believe that in these latter days we have gone too far astray from the fact that the casein, that is, the casein of raw milk, too, plays an important rôle in the digestive disorders of infancy; that, again, as nearly all of our therapeutic measures attest, we must not pass lightly over the old fact that the outstanding difference in the composition of cow's milk and of human milk is in the relative amount, and hence coagulability, of the casein. And I venture the belief that if milk boiled two to five minutes in the consumer's home was as popular today as is raw or pasteurized milk, babies would suffer less.

5803 Blackstone Avenue.

ABSTRACT OF DISCUSSION

DR. C. G. GRULEE, Chicago: The essayist is much in accord with my ideas. I have felt for many years that scurvy had been held up as a scarecrow to keep people from using boiled milk. I do not remember having seen a case of scurvy for the past two years. I use boiled milk and boiled certified milk. The most important statement Dr. Brenneman made was that he had never seen a baby who did not do as well on boiled milk as on raw milk. I question very much if boiled milk is anything like as strong a factor in the production of scurvy as has been declared. This, in my opinion, has been grossly exaggerated. I am in favor of the use of raw milk in some instances.

DR. HARRY LOWENBURG, Philadelphia: I have used boiled milk for the last three years. I have even used it in combination with the old-fashioned flour ball, and I can testify to the correctness of the statement that simple boiling will make the curds disappear from the stools in most instances. In some it does not. Then the addition of the pulverized flour ball and, perhaps, a few grains of pancreatin will provide the needed assistance. The only thing about which I might take issue with him is that occasionally scurvy does occur. One almost hesitates to talk of scurvy because the classical symptoms are so clear it seems as though every one should know them. Just the reverse is true. Nearly all the infants are treated for rheumatism and the infantile and parental suffering resulting therefrom is pitiable and lamentable. During the last two years while using boiled milk I saw two cases of scurvy develop. Raw milk, orange juice and mashed potatoes brought about a prompt subsidence of the symptoms. Hence one should be on the lookout for the initial symptoms of this disease and immediately change to raw milk or institute antiscorbutic measures throughout the time the infant is receiving boiled milk. I want to congratulate the doctor on the fact that he has had the courage to state that the coaguable protein of cow's milk is still to be considered as a factor in the development of dyspepsia in infants. The Germans teach us to feed protein in almost incalculable quantities and that all, or nearly all, alimentary disturbances of the suckling depend on relatively high fat and high sugar percentages. While true in many instances, my own experience does not permit me to regard the curd of cow's milk as a negligible etiologic factor in the dyspepsias of infants.

DR. F. N. ROGERS, Manchester, N. H.: I have never noticed any great prejudice toward the use of boiled milk. I have always felt that there was a great deal of difference of opinion as to the way these babies should be treated. I have not taken the initiative in trying new methods of feeding babies. I take the work done before me and follow it out. Results are what we are looking for. I thoroughly believe that boiled milk is preferable and to be desired in a certain class of cases. I prefer certified milk. Such milk, with constant icing until the time it reaches the baby, has always produced good results with otherwise healthy babies. I have had this thought for several years—that perhaps some babies are unable to take raw milk—they may have a peculiar sensitization for albumin

in milk, and perhaps that albumin is absorbed. I think there is danger of anchoring ourselves to any one method of infant feeding. I want to report one case. This baby, 3 months old, had been fed on raw milk. He had lost weight. When I saw the baby it had been kept for a week preceding on a mixture of malt food of some kind. Its extremities were cold, its vitality was low; it was undoubtedly in a starved condition. I started in with a raw milk mixture, which did not agree with the baby; then I used boiled milk with an alkali, and the baby did well. I felt that the using of boiled milk as well as evaporated cream was a great help in certain cases.

DR. J. H. HESS, Chicago: There has always been some prejudice about feeding with boiled milk. My own treatment has been improved by the addition of fruit juices and soup. I find that babies seem to want more boiled milk, and so I find myself in constant danger of overfeeding. Some babies can be fed anything, and I suppose this is true as regards quantity also. These babies often stand more by giving a little cod-liver oil. There is very marked improvement on boiled milk with the addition of cod-liver oil. One other point—the question of infection. It is true that in the hospital where babies are fed raw milk you will find one class of intestinal infection. In the hospital where babies are fed on boiled milk you will find much less infection. We have had no gas bacillus infection in our wards in two years. I used to take my vacations in the winter, spring and fall. Since I have been feeding boiled milk I take them in the summer.

DR. L. R. DEBUYS, New Orleans: I used to use raw milk, then pasteurized milk, and now I use boiled milk. But I believe we must first have good milk. I instruct my clinic patients to boil the milk, not for the day, but just before the mixture is made each time, so that if the iceboxes are at fault or if any changes have taken place in the milk, boiling will cause curdling of the milk which will show that it is unfit. Raw milk is more apt to sour and boiled milk to rot. Another point I have long been teaching is that as soon as boiled milk is given so soon must orange juice be included in the daily diet.

DR. J. H. M. KNOX, JR., Baltimore: It would be a great pity if the end-result of this would be that we would take less care to get good milk because of boiling it. We must take just as great care to have pure milk as though we were giving it raw. In Baltimore the milk that is sold in the homes in warm weather contains anywhere from 2,000,000 to 10,000,000 bacteria. If it is not kept on ice it is dangerous unless it is boiled. In some parts of the country there has been an increase in scorbutus following the general use of boiled milk. That is something we should be on the lookout for. If we give orange juice in conjunction with the boiled milk it will obviate this phase.

DR. C. J. HASTINGS, Toronto, Ont.: I would like to emphasize what Dr. Knox said in regard to officers of the bureau of health insisting on having a high grade milk. I am officer of health in Toronto, and there we do not permit any milk to be sold that has not come up to the standard of certified milk, and it must be shown to be clean and free from contamination. All milk that is not up to the standard is required to be pasteurized. Pasteurization plants are inspected regularly. Bacterial count is taken before and after pasteurization; the temperature of the milk at the time of pasteurization, and the period at which it is kept at that temperature is reported. We are having self-registering thermometers put in the plants, of which we carry the keys, and therefore we know whether that milk is being prepared according to requirements. I think the element of danger of scurvy from boiled milk is remote—not to be considered with the possibility of transmission of communicable diseases. Those of us who have made a study of the milk problem are aware that outbreaks and epidemics have been traced directly to raw milk. From 25 to 26 per cent. of tuberculosis in children under 16 years of age is of bovine origin. There is no doubt as to the extreme importance of pasteurization of milk before feeding to children.

DR. C. G. KERLEY, New York: Sweeping statements regarding milk are not particularly wise. Milk has to be used at different seasons of the year by people living under widely different conditions, and, further, milk may vary greatly not only in its nutritional content but as concerns its cleanliness. Whether milk should be used cooked, boiled, pasteurized or raw depends on the conditions just referred to. Personally, I prefer raw milk if I can have it right and if it can be kept under proper conditions of cleanliness and temperature. This, of course, means that a comparatively small part of the human baby family will be able to get raw milk. I believe, however, that for well babies it is the best artificial food that can be given. When safe raw milk cannot be secured then I believe it should be boiled, regardless of who uses it, when or where. Further, I prefer cooked milk or milk that has been subjected to the influences of heat in all difficult feeding cases. Cooked milk is more readily digested in young babies than raw milk and milk cooked with starch furnishes a suitable food for delicate infants. I use this or the evaporated milk also cooked with a starch in a vast majority of my difficult feeders. I believe that cow's milk casein may be an important disturbing factor in the feeding of young infants. Scurvy is practically the only thing we can bring up against cooked milk, and the administration of orange juice will take care of this. All my patients on cooked or evaporated milk are given orange juice.

DR. JOSEPH BRENNEMAN, Chicago: Dr. Kerley said sweeping statements were not a good thing. I do not believe that he referred to me for I have not made any sweeping statements. I think bacteriologically boiled milk is safer. As far as raw milk is concerned, there is a physiologic difference. One is more easily digested than the other. Dr. Kerley said exactly the same thing when he says that he feeds dyspeptic babies boiled milk. I have been extremely conservative in my statements. Some years ago I published an article about the relationship of raw milk to hard curds of infants' stools, and later a paper on the difference between the curds formed in the stomach with raw milk and with boiled milk. I said at this time that I was not offering any suggestion as to whether boiled or raw milk should be used as a routine. I did not want any one to think that just because I found that raw milk caused "hard curds" or made larger curds in the stomach that therefore I advocated the use of boiled milk, as one reviewer said I did. I wanted to observe the clinical difference between raw and boiled milk for years before I committed myself, for the ultimate test is the baby, not the apparent difference in the two milks, physiologically. I have waited six or seven years before expressing myself publicly even as mildly as I have today. I want that impression to remain. I am really not advocating boiled milk today. I simply say there are differences that I have tried to point out, and those differences make me use boiled milk, at the present time, for physiologic as well as bacteriologic reasons.

Bretonneau and Diphtheria.—In 1821, Bretonneau began to study epidemic diphtheria in his locality, and for some thirty-five years or more, after the fashion of Sydenham, he followed the course of this disease, of which he knew more than any other man in his time. He became a sort of specialist in diphtheria, and his great monograph of 1826 is one of the classics of medicine. He introduced the generic term "*diphthérite*," as including all the diseases variously described as ulcera Syriaca, ulcera Aegyptiaca, synanche trachealis, croup, malignant angina, angina suffocativa, etc., elucidated its pathology at the bedside and in postmortem, insisted on its specific contagious character, differentiated it from the scarlatinal, stridular, buffy, and other anginas, showed the insidious character of the nasal invasion, showed how the false membrane can be simulated in animals by the eschars from strong acids or by the local inflammation produced experimentally by cantharides or similar insects, described the cutaneous and vulvar forms, and on July 1, 1825, performed the first successful tracheotomy in diphtheria, after five failures. His monograph concludes with historical extracts from all the older authors known to him, including Samuel Bard.—"Armand Trousseau: A Master Clinician" by Fielding H. Garrison, M.D.

THE USE OF MALT SOUP EXTRACT IN INFANT FEEDING*

B. RAYMOND HOOBLER, A.M., M.D.
DETROIT

The use of malt soup in the dietary of infants dates back over fifty years to the days of von Liebig, who proposed it as a food for healthy infants who for any reason were deprived of their mother's milk.

About ten years ago A. Keller modified von Liebig's formula in such a manner as to make it a suitable food for infants suffering from intestinal disorders.

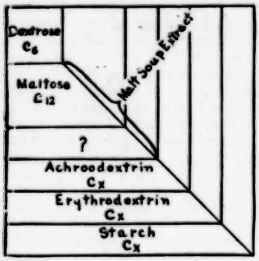

Chart 1.—Starch molecule and its products (after Stolte).

The original von Liebig's formula has been abandoned because of its difficulty in preparation, and we follow today the method of preparation as outlined by Keller. The various malt soup extracts which are put on the market all carry with them directions for preparing the malt soup according to Keller.

To follow only this one method of preparation limits to too great an extent a food capable of being used in many other ways, and the purpose of this paper is to discuss other methods of using malt soup extract in the nutrition of infants suffering from conditions other than diarrheal diseases for which malt soup was primarily intended. Indeed, if I mistake not, malt soup is more frequently used today for the treatment of constipation in infants than for the cure of "enteritis," for which it was specifically devised. This seems paradoxical, and accounts for the confusion of opinions and for the very disastrous results obtained in certain cases.

It seems to me, therefore, that in order to clear the field of confusion and to save such an excellent food product from being wrongly used, there should be a variety of methods devised for its use, depending on the results one wishes to accomplish. It is evident that any food made up according to one specific invariable rule is certain sooner or later to prove unsatisfactory in many cases.

Following is the formula usually printed on the container of one malt soup extract:

Directions for preparing Malt Soup:

Make two mixtures as follows:

Mixture 1: Take 3½ ounces by weight (or 2½ ounces by measure) of malt soup extract and dissolve in 22 ounces of warm water.

Mixture 2: Take 1¾ ounces by weight (or 2¾ ounces by measure) of wheat flour; mix with 11 ounces of milk and strain through a clean sieve.

Add Mixture 2 to Mixture 1 and boil three minutes, stirring constantly. Cool quickly and pour into clean bottles holding 6 ounces. Plug them tightly with absorbent cotton, or if corks are used they should be absolutely clean and close fitting.

Keep in a cool place.

* Read before the Section on Diseases of Children at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

We have in malt soup a mixture of boiled whole milk, raw wheat starch, malt soup extract, water and an alkali in the form of potassium carbonate. We are asked to use this food designed by Keller for the treatment of enteritis cases in other conditions without varying the formula. It is only natural that there should be many failures; the failures, however, should not be wholly charged to malt soup extract, but should in my opinion be charged to the method of preparation.

It seems to me that von Liebig's original use of malt soup for the nutrition of normal infants, particularly those infants whose weight is at a standstill and whose bowels tend to be constipated, offers a much greater field for the use of this excellent food product. When used in such cases, it has been my custom to vary the Keller formula for the following reasons:

1. Boiled milk to my mind should not be given over long periods of time to children with a tendency to constipation.

2. Raw starch, or any starch cooked from only three to five minutes, should not be given to any infant, as it causes marked indigestion in many cases.

3. I do not think the proportion of one-third whole milk and two-thirds cereal water is the correct proportion in every case in which malt soup extract is indicated.

4. The use of the full quantity (3½ ounces by weight to 1 quart) of malt soup extract is too arbitrary a quantity. This amount will often cause an infant to have too many watery stools, producing marked fall in weight due to water loss.

5. The use of the alkali (potassium carbonate) is to my mind far more indicated in a formula designed for the correction of constipation than for diarrhea, since it has been shown by Dr. Holt that loose stools contain a larger proportion of potassium and sodium than constipated stools; hence in attempting to change a hard formed constipated stool to a soft loose stool, the use of potassium and sodium in the food are indicated. From the fact that in loose stools there is a much lower proportion of calcium than in constipated stools, it would seem on theoretical grounds that when one desired to use malt soup extract in conditions in which there are loose stools, the use of calcium would be more indicated than the alkali potassium or sodium. However, the presence of the alkali potassium is theoretically the proper form of the alkali in conditions in which stools tend toward constipation, and this is confirmed by clinical observation.

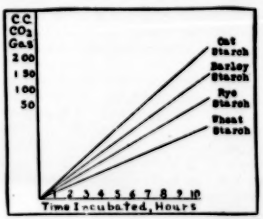

Chart 2.—Gas production from cereal waters (after Klotz).

The method of using the malt soup extract which has been most satisfactory in my experience is one which gives much greater flexibility in the use of the various ingredients than can be obtained in following Keller's formula. This may be accomplished by adding the malt soup extract to a well cooked cereal water, and this mixture added to raw milk in such proportions as one wishes.

To reduce to a rule:

1. Make up 1 quart of cereal water, using such quantity and kind of cereal flour as may be indicated. (The cereal water is to be cooked at least one hour in a double boiler.) When sufficiently cooked, and while still hot, add 2 level tablespoonfuls of malt soup extract. Stir until dissolved. Strain.

2. Select the kind of milk which it is desired to feed, and measure off the number of ounces of the milk which are to be fed during the twenty-four hours. (This will vary according to the age, weight and condition of the infant.) Add to the milk as much of the cereal-malt soup extract as is required to make up the quantity to be fed in twenty-four hours. Add to this such amount and kind of sugar as may be indicated.

This formula serves for the first two or three days, and is in the form of a trial formula. If the child retains it and the stools become more frequent and softer, and there is a gain in weight, this formula may be continued. If the child retains it and there is no change in stools or weight, then gradually increase the malt soup extract. With each increase of malt soup extract one should withdraw an equal amount of the added sugar, provided one is near the carbohydrate limit, which of course varies in different children. By using this method of preparation one is at liberty to vary the amount and kind of cereal water used. The use of so much wheat flour cooked for such a short time is in my opinion responsible for many failures in the use of malt soup. The wheat flour was added in the original formula of Keller for its constipating effect, as it was found that when malt soup extract was used alone it was too laxative. In the choice of the cereal flour used in connection with malt soup extract, one should be guided by the effect which it is desired to produce. If a marked laxative effect, then one type; if a constipating effect, then another; if intermediate, then still another group.

Dr. Stolte, associated with Professor Czerny, explains this difference in the action of the various starches in this manner:

Starch, as it undergoes hydrolysis, releases at each step in the process some of its sugar in the form of dextrose. C_x starch plus hydrolysis equals erythrodextrin plus C_6 sugar. C_x erythrodextrin plus hydrolysis equals achroodextrin plus C_6 sugar. C_x achroodextrin plus hydrolysis equals C_{12} maltose plus C_6 sugar. C_{12} maltose plus hydrolysis equals C_6 sugar plus C_6 sugar. This is represented diagrammatically in Chart 1.

The starch granules of the various cereals do not all hydrolyze with the same rapidity; hence some of them release the C_6 sugar more quickly than others. As soon as the dextrose is released, it is subject to attack by the intestinal flora and undergoes fermentation. The products of this fermentation, acting on the intestinal mucosa, cause an increase in peristalsis. If sugars are released rapidly, then there is active fermentation accompanied by active peristalsis, and this active peristalsis results in increased number of stools. Therefore any cereal that releases its sugars rapidly has a laxative action.

It has been known empirically for many years that oatmeal was a laxative cereal. Klotz has shown that oatmeal yields its sugars more rapidly for fermentation. I have introduced his original chart to which I have added my own observations regarding barley, rye and wheat (Chart 2).

Klotz also studied the fermentability of malt solution alone and with wheat and oatmeal flour, using the amount of acidity produced as an index of fermentation, with the results indicated in Table 1.

According to these findings, if one desired a markedly laxative mixture, one would use malt soup extract in a cereal water made from oatmeal flour. If one wished a mildly laxative mixture, malt soup extract with a cereal water made from wheat flour would be indicated. This is no doubt perfectly true when the fermentation is carried on by means of yeast, but it does not always follow when we deal with the intestinal flora of individual infants.

I present a few type cases taken from many observations made at the Children's Free Hospital, indicating that not all children handle the various starches in the same manner. It seems probable that the difference is due to the bacterial flora. Details of the observations were as follows: On admission a stool was collected in a sterile oiled silk napkin. A portion was weighed and an emulsion was mixed with sterile distilled water in definite proportions.

The various cereals used in the hospital were made up in 1 per cent. solutions, each cooked for two hours, strained, and 10 c.c. put in sterile fermentation tubes. These tubes were kept in the refrigerator until ready for use. Each tube was inoculated with 1 c.c. of an emulsion of feces in sterile distilled water. At the end of twenty-four hours the amount of gas formed in the tubes was read and the relative amount present indicated by the number of crosses after the different cereals. The acidity was also taken and measured in terms of cubic centimeters of tenth normal sodium hydroxid per hundred c.c. cereal solution. Several

TABLE 1.—FERMENTABILITY

	Acidity after 12 Hours
Malt solution alone	7.7
Malt solution plus wheat flour	7.4
Malt solution plus oatmeal flour	11.5

TABLE 2.—TYPES OF STOOLS

Kind of Cereal	Yeast	Feces of M. B. Mucus & Curds Gram Positive	Feces of C. C. Mucus & Curds Gram Negative	Feces of M. J. Mucus & Blood Gram Negative	Feces of M. J. after One Week Albumin Milk Treatment Gram Negative		Feces of H. M. Normal Stool Gram Negative Flora		Normal Stool & Pancreatic Ferment Added	
					Gas	Acidity	Gas	Acidity	Gas	Acidity
Dextrinized wheat flour	++	+	+	+	+	10	+	24	+	22
Barley flour	+	++	++	++++	+	16	+++	26	+	24
Oat flour	+++	+	+++	++	+	10	++	18	++	14
Corn flour	++	+++	++	+++	++	8	+++	10	+++	22
Rice flour	++	++	++++	++	+	10	++	16	++	16
Whole wheat flour	+++	+++	++	+++	+++	8	++++	14	++	22
Dextrimaltose	++	+	++++	++	++	6	+	20	++	22
Sucrose	++++	+++	++	++	++++	6	+	12	++	15
Malt soup extract	+++	++	++	++	+	4	+++	24	+++	24

cases representing various types of stools are given in Table 2.

It will be observed that no regularity can be noted in the action of the various starches when fermented with the bacteria contained in the feces of individual cases.

In the case of M. J. during an acute diarrhea all the starches were vigorously attacked by the intestinal flora. After having been fed on albumin milk for one week the stools became smooth, yellow and pasty. There was then much less activity on the part of the intestinal flora in attacking the starches.

In two different cases with stools as nearly alike in appearance as one could choose (M. J. and H. M.) there was much more gas and acid produced in one than the other, although nearly identical starches were chosen.

It seems evident, therefore, that the manner in which an infant will handle a starch solution depends in a great measure on its intestinal flora. It may do badly on one kind of starch and well on another. In the light of these researches it would seem that we should choose the type of cereal water given with malt soup extract as carefully as we should choose any other ingredient of an infant's formula, and in general this may only be determined by trial.

SUMMARY

In following the method suggested above, we have a perfectly flexible formula.

1. We may diminish or increase the milk.
2. We may use it boiled, pasteurized or raw, as we choose.
3. We may select the kind of cereal water used, and may increase or diminish its strength at will.
4. We may increase or diminish the amount of malt soup extract used, enabling one to start in with a small quantity and gradually increase it if it agrees.
5. We may add other sugars in amounts sufficient to meet the needs of any case, and withdraw them as malt soup extract is increased.

David Whitney Building.

REST OF THE INDIVIDUAL LUNG BY POSTURE *

GERALD B. WEBB, M.D.,
ALEXIUS M. FORSTER, M.D.
AND
F. M. HOUCK, M.D.
COLORADO SPRINGS, COLO.

Respiration in a normal person takes place upward of 30,000 times in twenty-four hours.

When a tuberculous patient rests on one side at night, the dependent lung is restrained in motion, but the upper lung opens and closes about 12,000 times in ten hours of sleep.

We have noticed a marked tendency for the consumptive to lie on the side of the better lung at night, as the following figures testify. It therefore often happens that the very lung which needs the most rest is getting the most work.

Twenty-eight patients had a greatly involved left lung with an almost normal right lung; of these, 17 slept on the right side, none on the left, eight on either side, and 3 on the back.

Thirty patients had a greatly involved right lung with an almost normal left lung; of these, 13 slept on the left side, 7 on the right, 8 on either side, and 2 on the back.

Twenty-four patients had a slightly involved left lung and an almost or quite normal right lung; of these, 11 slept on the right side, 4 on the left, 6 on either side, and 3 on the back.

Forty-one patients had a slightly involved right lung and an almost or quite normal left lung; of these, 7 slept on the left side, 10 on the right, 15 on either side, and 9 on the back.

Thirty-three patients had about the same amount of tuberculosis in each lung; of these, 4 slept on the left side, 16 on the right, 12 on either side, and 1 on the back.

It would seem that a majority of normal persons sleep on their right sides, yet there are certain factors which may determine otherwise.

A nasal obstruction, the turning the eyes away from the light and other factors may have an influence on the position taken during sleep.

It was pointed out by Walsh[1] that in pulmonary tuberculosis the disease would seem to begin in most patients at the right apex. Later possibly the left apex would show evidence of disease, and the further spread of tubercles would be to the left base. We have ourselves noted that we have had more patients needing pneumothorax with extensive left sided than with extensive right sided tuberculosis.

The life history of the tubercle bacillus demands access to and egress from the host. It would possibly seem rational to imagine that in the tubercle bacillus making the human race meet its needs, the disease would become more widespread in the more exercised lung. The fact that the majority of persons are apt to sleep on their right sides and the fact that a majority of advanced tuberculous lesions are to be found in the left lungs may not prove to be entirely coincidental.

The experiences noted from successful artificial pneumothorax convincingly show the great value of rest of the tuberculous lung.

Rubel[2] has shown in rabbits injected intravenously with bovine tubercle bacilli that in an immobilized lung the tuberculous process becomes a chronic type, whereas in the freely moving lung the disease is of a rapidly progressive type. It would seem rational, therefore, to advise patients to lie on the side of the more diseased lung at night and also to rest in this position as much as possible in the day time. We have noted that in general those patients who have unconsciously done this would seem to present more quiescent lesions.

About fifteen years ago one of us advised this position of sleep and rest to a patient with advanced right sided lesions who today is in excellent general health.

In many patients, on account of the cough produced by such posture, we have allowed rest for a short time on the sound side in order to procure drainage, and then we have trained them very gradually to rest on the side containing the actively diseased lung.

During the past year we have applied this principle in a large number of cases, and in addition have placed under the dependent side a small firm pillow to restrain the motion of this lung to a greater degree. Some patients so treated have been able to remain lying on the side of the diseased lung over twenty hours a day for months at a time with little discomfort. The results have been encouraging, and we feel we

* Read at the twelfth annual meeting of the National Association for the Study and Prevention of Tuberculosis.

1. Walsh: Tr. Fifth Annual Meeting, Natl. Assn. Study and Prev. Tuberc.
2. Rubel, in Fishberg: Pulmonary Tuberculosis.

have observed in certain cases a cessation of fever, a diminution of expectoration, and lessened liability to relapses.

In the normal person there is probably little if any hyperemia of the dependent lung during sleep. In a tuberculous patient, however, a moderate degree of hyperemia is undoubtedly produced by prolonged rest on the affected side. We would seem to have confirmation of this probability in several patients who have found hemorrhages to occur over a period of years whenever they have slept on the side of their diseased lung.

It would seem wise in future to observe all patients with nocturnal or early morning hemorrhages from the point of view of the side on which they have rested at night.

In certain patients with heart lesions the rarity of pulmonary tuberculosis has been thought to be due to a possible back pressure of the blood in the pulmonary circulation.

Fagge[3] found only four cases of pulmonary tuberculosis with mitral stenosis in thirty years' records of postmortems at Guy's Hospital.

In searching the literature in regard to the above mentioned simple procedure little can be found.

Mendelsohn[4] advocated patients with pulmonary tuberculosis lying on the side of the healthy lung so that the discharge assisted by gravity could more easily flow to the bronchus and so be thrown off.

Link[5] in 1902 suggested tuberculous patients resting for a few hours during the day on the side of the tuberculous lung, but from his article it would seem did not thoroughly carry out the suggestion.

Link, however, calls attention to the possibility of hyperemia and also of the added rest of the affected lung by adopting such a procedure. Link observed the diminished respiratory murmur of the dependent lung.[6]

Fig. 1 (Case 1).—Tumor filling third ventricle.

3. Fagge, in Fishberg: Pulmonary Tuberculosis.
4. Mendelsohn: Ueber therapie Beeinflussung der Expektorationen durch Heilmittel der Hypurgie, Berl. Klin., 1899.
5. Link: Lagerung der Kranken bein einseitiger Spitzentuberkulose, Ztschr. f. Tuberk., iii, 480.
6. The following references may also be consulted:
Rubel: Funktionelle Ruhe der Lungen, etc., Ztschr. f. Tuberkulose, x, 193, 319.
Gerhardt: Die Lage der Kranken als Heilmittel, Ztschr. f. Krankenpflege, 1898, p. 58.
Galliard: Les Pleuresies providentielles, Sem. méd., 1897, p. 214.
Von Leyden: Der Comfoit der Kranken als Heilfaktor, Ztschr. f. Krankenpflege, 1898, xx.
Reusner: Die Expectoration bei allein erhaltener Zwerchfellathmung, St. Peterab. med. Wchnschr., 1898, No. 2.

Charcoal in Local Treatment of Gonorrhea.—An abstract in the *Correspondenz-Blatt* says that Oppenheim and Schlifka of Vienna report excellent results from injection into the urethra, once a day, of a suspension of 5 gm. of animal charcoal in 0.5 liter (quart) of tepid water. Acute gonorrhea, suppurating profusely, with numerous gonococci, was permanently cured by this alone, but the cure could be hastened by combining it with an astringent (1:6,000 potassium permanganate). The procedure proved most promptly effectual in acute posterior urethritis with diffusely purulent turbid urine. They said that this charcoal lavage does not irritate or harm in any way.

TUMORS OF THE THIRD AND FOURTH VENTRICLES*

PETER BASSOE, M.D.
CHICAGO

I. TUMORS OF THE THIRD VENTRICLE

In 1910 T. H. Weisenburg,[1] on the basis of thirty reported cases with necropsy, succeeded in bringing out the salient features of tumors arising within the third ventricle and thus establishing a syndrome which necessarily is ill defined, as the symptoms are either due to pressure on neighboring structures or to secondary hydrocephalus. Among the former symptoms are paralysis of the associated ocular movements, exophthalmos, large pupils with impaired reaction, and ataxia of the cerebellar type. Of the few cases reported later, one by Lewis J. Pollock[2] may be mentioned, as the appearance of the tumor on cross section of the brain closely resembles that of the one to be related here.

CASE 1.—*Boy, 14 years old, with rather precocious genital and hairy development suggesting hyperpinealism. Limitation of ocular movements. Papillitis and blindness. Ataxia. Headache; drowsiness; mental dulness. Soft glioma filling third ventricle; secondary hydrocephalus.*

A boy 14 years old was admitted to the surgical service of Dr. Carl B. Davis in the Presbyterian Hospital, Aug. 24, 1915, having been referred to him by Dr. J. C. Bucher of Verona, Ill. The parents and two brothers and sisters are in good health. The patient had previously been healthy and had done well in school. He had been of a solitary and shut-in disposition and had used tobacco to excess for four or five years. Two months before admittance he had daily headache for a week or ten days, then it subsided, and he had not complained of it for a month before coming to the hospital. Two weeks before admittance he suddenly became blind, and a few days later he had an epileptiform attack. From the time of the onset of headache he gradually grew dull mentally.

Examination by the writer on the day of admission: Well developed boy with healthy, ruddy complexion. The head is rather large, the circumference being 58.5 cm. He has a very distinct mustache for his age, also abundant pubic hair. He is dull, drowsy and apathetic and cannot give a reliable account of his previous history. The pupils are equal, wide and do not react to light or in accommodation. When at rest the eyeballs diverge a little. There is apparently no light perception. The movements of the eyeballs, especially the left one, are much limited. The left eye is only moved 15 degrees outward, the right one twice as much. Marked bilateral choked disk with hemorrhages. Corneal reflexes present. He lies on his back with head turned to the left and holds the neck stiff. Any movement of the head, especially to the right, is resisted and seems to cause headache. The gait is very unsteady and he has a tendency to fall backward. Ataxia of the extremities is demonstrated by the finger to nose and heel to knee tests. Examination of sensation is unsatisfactory, but apparently there is some diminution

* Read before the Section on Nervous and Mental Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.
1. Weisenburg, T. H.: Brain, 1910, xxxiii, 236.
2. Pollock, Lewis J.: Tumor of the Third Ventricle, THE JOURNAL A. M. A., June 5, 1915, p. 1903.

of pain sense on the left side of the face. The facial muscles appear somewhat weak on both sides, and the greatest weakness is found in the shutting of the left eye. The watch is heard in both ears. Knee jerks are absent; left ankle jerk absent, right present. Abdominal and cremasteric reflexes present. Wrist and elbow jerks present. No Babinski sign. The genitalia are very well developed.

Blood examination: Hemoglobin, 82 per cent.; red cells, 6,000,000; white cells, 15,900.

Urine: Normal except for excess of phosphates. The Wassermann test is negative with blood and spinal fluid, and

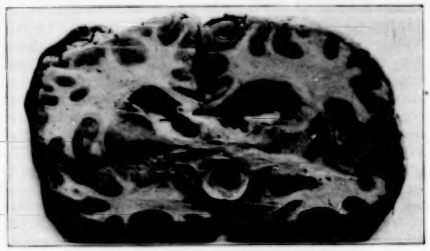

Fig. 2 (Case 1).—Anterior portion of tumor.

the latter shows no increase in cells or globulin and gives a negative Lange colloidal gold test.

August 27, ophthalmoscopic examination by Dr. C. G. Darling shows a swelling of 8 diopters in the right eye and 4 or 5 in the left eye.

August 30: Getting worse mentally; seems disoriented; soils bed; has vomited his breakfast a few times; little headache, always tendency to fall backward.

A diagnosis of brain tumor was made, most likely located in the region of the corpora quadrigemina or pineal body, although the possibility of a cerebellar site could not be excluded. However, only a decompression operation was advised.

August 31: Right subtemporal decompression was made by Dr. Davis. The brain was found to be under unusually high pressure. The temperature, which previously had not exceeded 99 F., rose to 102.4 six hours after the operation, and reached 104.8 before death, which occurred thirty hours after the operation.

Necropsy.—The brain weighs 1,450 gm. The sulci are shallow and the gyri flattened. On the right side is a bulging area corresponding to the recent decompression operation. On the inferior surface there is a marked downward bulging in the region of the pineal body. The latter structure, however, is of normal appearance. After hardening in liquor formaldehydi the brain was cut by means of frontal sections. The bulging referred to is found to be caused by the great distention of the lateral ventricles. A soft, light gray tumor is found to fill the third ventricle (Fig. 1). Posteriorly it lies free in the ventricle, plugging the opening of the aqueduct, and appears to have a slight capsule. Its upper surface bulges into and completely closes the foramina of Monro (Fig. 2). In front of this level the tumor is seen to extend in a downward direction in front of the infundibulum, the anterior end being 9 mm. in front of the anterior border of the optic chiasma. The bulging at the base produced by this forward growth of the tumor begins at about the center of the base of the infundibulum and extends 2.3 cm. forward, or 1.1 cm. in front of the chiasma. The greatest anteroposterior measurement of the tumor in the third ventricle is 4.7 cm. Transversely it measures 1.9 cm. and vertically 2.1 cm. The degree of hydrocephalus may be judged from Figure 3, showing the anterior portion of the lateral ventricles.

Histologic Examination.—This tumor is very edematous, loose in texture, and in most places shows considerable evidence of tissue degeneration. Small hemorrhagic areas are seen. The cells are very variable in size and shape, and only in a few places is there any significant arrangement of them.

Many of the cells have the appearance of astrocytes, and very abundant fine fibers are seen in Van Giesen specimens. Their appearance suggests glia; but the Weigert glia stain failed, probably on account of the tissue degeneration. On the border of the tumor tissue remains of the ependymal layer of cells may be seen, in the form of palisade-like columns (Fig. 4).

II. TUMORS OF THE FOURTH VENTRICLE

Tumors of the fourth ventricle are much more common than those of the third ventricle. They also produce symptoms by inducing hydrocephalus and by exerting pressure on neighboring structures, in this case the cerebellum, pons and medulla. Like all other posterior fossa tumors, they may produce stiffness of the neck and occipital pain; and as increase in cells and globulin as well as in the pressure of the spinal fluid is common, a clinical resemblance to meningitis sometimes exists. This is well shown in our Case 2, while Case 3 presented the picture of cerebellar tumor, and in Cases 4 and 5 mental symptoms predominated. In another case reported by the writer[3] in which, in addition to the fourth ventricle tumor, another ependymal glioma in the frontal lobes was present, mental symptoms entirely dominated the clinical picture. Sudden death is very frequent in these cases.

CASE 2.—*Early symptoms suggestive of meningitis. Cloudy spinal fluid with increase in cells, both polymorphonuclear and mononuclear. Papillitis. Duration five and one-half months. Sudden death. Very large tumor in fourth ventricle, breaking through and almost surrounding pons.*

A boy 2½ years old, formerly well, was seen with Dr. H. F. Helmholz at the Evanston Hospital, Feb. 15, 1914. Ten weeks previously he had been taken ill with vomiting which occurred every day. There was slight fever, the temperature occasionally reaching 101 F. The child seemed to suffer from headache. Strabismus and nystagmus had been noted, but there were no convulsions.

Blood examination, February 12: Hemoglobin, 75 per cent.; reds, 5,000,000; white cells, 15,000.

Examination.—Slight bilateral papillitis; no Kernig sign, no rigidity; knee and ankle jerks weak; abdominal reflexes

Fig. 3 (Case 1).—Anterior portion of distended lateral ventricles.

weak, left weaker than right; doubtful left Babinski sign. The child was fairly bright and good natured. On making lumbar puncture the fluid was cloudy and escaped in a stream. There were 363 cells per cubic millimeter, about two thirds of which were polymorphonuclear. No bacteria were found in smears or cultures. As tuberculosis was suspected, a guinea-pig was inoculated but did not develop the disease.

For further information regarding this case I am entirely indebted to Dr. Helmholz and to Drs. W. O. Hoffman and

3. Bassoe, Peter: Multiple Ependymal Glioma, Arch. Int. Med., September, 1908, p. 194.

A. B. Schwartz, in whose article on the permanganate reduction index of the cerebrospinal fluid[4] this case appears as Case 1. February 17, slight rigidity of the neck appeared with suggestion of the Kernig sign on the left side. There was a distinct Babinski sign on the left side; right plantar reflex normal. February 18, spinal fluid still opalescent but pressure not increased. The patient improved, and on February 24 he could stand up and walk when led by the hand. The headache was less severe, and vomiting had ceased. The spinal fluid was clear and showed a few lymphocytes, but no bacteria. A "weakly positive" Wassermann reaction was obtained with the spinal fluid, and the Lange gold test on this and three subsequent occasions gave a weakly positive reaction of syphilitic type, which may be represented as follows: 0 1 2 2 1 0 0 0 0 0 (maximum reaction would be 5). Mercurial treatment was now commenced and the patient continued to improve. March 2, a weakly positive Wassermann test with the blood was obtained. March 17, he walked well and had gained in weight. Lange test negative in all dilutions. No puncture was then made for a month, and by April 16 the headache had returned and marked ataxia had developed so he could not sit up in bed with the eyes closed. There was some relief after lumbar puncture. The Lange test was negative.

May 9: In spite of repeated lumbar punctures, the symptoms became more severe.

May 25: Frequent vomiting. Unable to sit up without swaying from side to side. Mind clear. Wassermann test with spinal fluid negative.

June 9: Died quite suddenly without any special symptoms having developed.

Necropsy.—After hardening in liquor formaldehydi the brain weighs 1,385 gm. The gyri are large and flattened, the sulci shallow. The cerebellar lobes at the base are seen to be separated by a light gray tumor mass which extends forward and upward so as to nearly surround the pons, only a space 8 mm. being left uncovered (Fig. 5). The width of the tumor between the cerebellar lobes is 3 cm., and it extends 4 cm. backward from the posterior border of the bulb. Figure 6 shows how the tumor fills and enormously expands the fourth ventricle. Hemorrhagic areas are seen in its substance. The pons and bulb are greatly flattened. The aqueduct is much dilated, the ventricles only moderately so. The tumor deeply indents the cerebellum on both sides, more so on the right, but does not grow into this organ or into the pons or bulb.

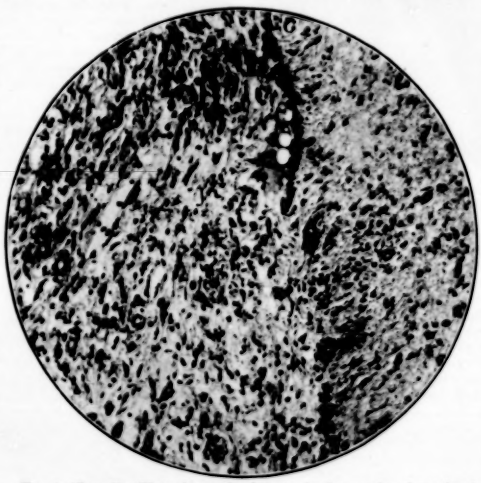

Fig. 4 (Case 1).—Photomicrograph of tumor showing remains of ependymal layer.

Histologic Examination.—The tumor shows characteristic structure of glioma, with typical rosette or fan-shaped arrangement of the cells about the vessels. Fine glia fibers are demonstrable by the Weigert glia stain (Fig. 7).

CASE 3.—*Clinical picture of cerebellar tumor. Death on operating table after exposure of dura over cerebellum. Small tumor in upper part of fourth ventricle. Marked hydrocephalus.*

A girl 5½ years old was examined, Oct. 8, 1912, in consultation with Dr. W. R. Parkes of Evanston. The child had been perfectly well up to the age of 4 years, when she had measles. Two or three months later she began to stumble in walking and would usually turn the eyes to one side. She had headache for a month at that time. The legs gradually grew worse. In November, 1911, a neurologist discovered optic neuritis, made a probable diagnosis of cerebellar tumor and advised operation, but his advice was disregarded. After a fall, four days before my examination, she began to vomit and became semistuporous.

Examination.—The head is unusually large, but this is probably not significant, as the six healthy brothers and sisters also have large heads. The patient is dull and drowsy, and does not at all cooperate in the examination. The pupils are equal, of medium width, and react normally. Bilateral papillitis of moderate degree, probably of long standing. No nystagmus; no facial paralysis. Ocular movements probably normal. All tendon reflexes increased. Both legs spastic, bilateral ankle clonus and Babinski sign. The upper abdominal reflexes were equal and normal, the lower doubtful. A diagnosis was made of tumor in the posterior fossa, probably cerebellar, and operation advised. October 15, a suboccipital operation was performed by Dr. Charles E. Kahlke, but the patient died before the dura was opened.

Through the courtesy of Dr. W. Henry Wilson, pathologist to Hahnemann Hospital, I later had an opportunity to examine the brain, which had been hardened in liquor formaldehydi and afterward weighed 820 gm. The upper part of the fourth ventricle is filled by a grayish, smooth, rounded tumor, attached to the floor for a distance of 2 cm. (Fig. 8). Its width is 15 mm., height 7 mm. Its inferior border is 2 cm. above the end of the ventricle. On making longitudinal section it appears as if the tumor at its upper end extends for at least 1 cm. into the pons. The brain shows very marked hydrocephalus (Fig. 9).

Histologic Examination.—The tumor is a glioma, rich in cells.

Longitudinal sections of the pons beneath the tumor show that the latter extends well into the pons substance. The border is diffuse. Pal-Weigert specimens show no persistent nerve fibers in the portion of the tumor growing into the pons.

A section of the upper part of the cervical cord, stained by the Pal-Weigert method, shows the posterior columns and the direct cerebellar tracts to be well preserved and deeply stained in comparison to the rest of the cord. The pyramidal and Gowers' tracts are decidedly degenerated.

CASE 4.—*Man of 58 years with symptoms of cardiovascular disease. Mental deterioration, delusions of persecution and delirious episode during last months of his life. Small sessile glioma in floor of fourth ventricle. External and internal hydrocephalus.*

A cab driver 58 years old was admitted to the service of Dr. B. W. Sippy in the Presbyterian Hospital, Oct. 5, 1906. He had been a hard working and temperate man. He had acute articular rheumatism at 17 and at 30 years of age, and syphilis at 48. For several years he had occasionally had sudden momentary sensations that he was going to fall when walking, a sensation of constriction around the chest, and shortness of breath on exertion. There had been a general

4. Hoffman, W. O., and Schwartz, A. B.: The Permanganate Reduction Index of Cerebrospinal Fluid, Arch. Int. Med., February, 1916, p. 293.

feeling of weakness for at least three years but no loss in weight, and the appetite had been good. While in the hospital he was suspicious of other patients, even claiming that they had robbed him and tried to murder him. His memory for recent events became greatly impaired. He gradually grew irritable and excitable, and three weeks after admittance became delirious, had involuntary discharges, and had to be

Fig. 5 (Case 2).—Base of brain showing tumor nearly encircling pons.

restrained. After three days the delirium subsided and he returned to his previous mental state. He also developed a pleuritic effusion in the hospital and at first there were both a systolic and a presystolic murmur at the apex with irregular rhythm, but later the presystolic murmur disappeared and the systolic one became very faint. The eye grounds were examined twice and found to be normal. The blood pressure at first was 190, later 104. The urine frequently contained albumin and hyaline and granular casts. The hospital record is silent as to any symptoms and findings on the part of the nervous system other than those mentioned. The patient died, Feb. 8, 1907.

Necropsy.—At the necropsy the following anatomic diagnosis was recorded: arteriosclerosis; thrombosis of left iliac artery; retrograde thrombus formation in the aorta; edema of lungs, fibrinous pericarditis; hypertrophy of heart; chronic mitral and aortic endocarditis; hypertrophy of prostate and bladder; multiple rectal ulcers; tumor of fourth ventricle; external and internal hydrocephalus; atrophy of brain.

On opening the fourth ventricle a growth was seen attached to its floor and extending into the lumen of the ventricle but not reaching its roof. It was 1.5 cm. long, 1.7 cm. wide, and 18 cm. in height (Fig. 10). The protocol described the brain as "soft and tense to bursting." There was a large amount of subdural fluid, and the pia-arachnoid was very edematous. The ventricles were dilated.

Histologic Examination.—The tumor shows the structure of ependymal glioma, with some areas consisting mostly of fine fibers while in others cells predominate. In the center of the tumor small areas of calcification, as well as hyaline concretions, are seen (Fig. 11).

CASE 5.—*Man, aged 38 at death. For several years attacks of headache, dizziness and vomiting. Early relative weakness in left side. Mild mental deterioration and symptoms of cardiac and renal disease. Death from hypostatic pneumonia. Sessile tumor in floor of fourth ventricle.*[5]

A business man, married, 37 years old, was first seen by the writer, Nov. 15, 1912. There was some suspicion of syphilis in the father. No brothers or sisters. No previous illnesses of importance. Venereal disease denied.

Present Illness.—The onset was very gradual. About five years before death (1909) he began having brief attacks of nausea and vertigo, later associated with headache of increasing severity, lasting in the beginning a few hours only, later several days. From about June, 1911, more or less vertigo was experienced every day, worse in the mornings and after heavy meals, and especially when stooping. Vomiting occurred with severe attacks of headache. He began losing flesh in 1910, but when examined by Dr. Portis in November, 1911, he still weighed 195 pounds; one year later, 152 pounds. Dr. Portis found gastric hyperacidity and low blood pressure, (96 to 108). In 1911 he began complaining of clumsiness and lack of control of the movements of the left hand and arm, especially annoying when shaving or driving his automobile. A tendency to drag the left foot and to stagger to the left was also noted at this time. When first seen by Dr. Davis in March, 1912, physical examination was practically negative. The Wassermann test with the blood was made several times, generally negative, once or twice "doubtful." Later in 1912 the weakness in the left side increased and he showed a suspicious overconfidence in his business ability. In October of the same year he became involved in business failure and legal prosecution, and showed apparent rapid increase in mental deterioration which, however, possibly to some extent was simulated.

Examination by the writer, Nov. 15, 1912: Patient carries himself like an old man and talks slowly and feebly. Memory probably somewhat impaired. Decided relative weakness in left arm and leg, latter slightly atrophic. Both knee and ankle jerks brisk, left more so. Pulse 68. No other findings.

Dec. 8, 1912, reexamined. Looks better; has had headache every day, worse when sitting up. Less difference in reflexes on right side and left side, but left leg appears weaker. Blood pressure 100, pulse 64. Wassermann test with blood and spinal fluid negative. The latter shows no increase in cells or globulin. Lange colloidal gold test negative. Ophthalmoscopic examination negative. Attacks of severe headache, with vomiting, recurred frequently. The patient was last

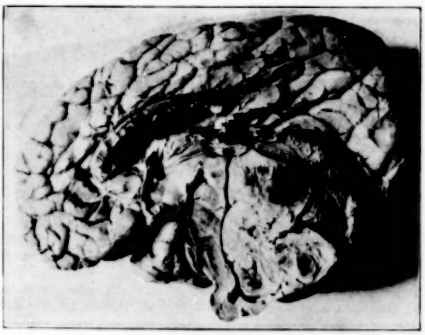

Fig. 6 (Case 2).—Median section of brain showing tumor filling fourth ventricle.

seen by me in 1913. Dr. Davis kindly informed me that he was under his continued observation from the fall of 1913 until his death in April, 1914. The weakness and atrophy of the left limbs increased. The eye grounds remained normal, but headache, vomiting and dizziness remained prominent symptoms. Albumin and casts appeared in the urine. Repeated examinations of the spinal fluid showed nothing abnormal. No sensory disturbance developed. A few days before death he developed hypostatic pneumonia which determined the fatal issue.

5. This patient was only under my observation for a period of a few months. For a large part of the clinical history I am indebted to Drs. Achilles Davis and Milton Portis, and for the necropsy notes and opportunity to examine the brain to Dr. F. Robert Zeit.

Necropsy.—This was held by Dr. F. Robert Zeit, who kindly placed his notes and the gross and microscopic specimens at my disposal. The following anatomic diagnosis was made by Dr. Zeit: Ependymal glioma of fourth ventricle. Internal hydrocephalus. Edema of brain. Chronic parenchymatous nephritis (large, red kidney). Hypertrophy of heart. Brown induration of lungs. Terminal hypostatic pneumonia. Healed tubercle in apex of left lung. Chronic granular gastritis and hemorrhagic acute duodenitis.

The specimen further examined by me consisted of the cerebellum, pons and medulla. The cerebellum had been opened from above so as to expose the fourth ventricle. This is greatly distended, and on the left side it forms a cavity occupying the greater part of the cerebellar hemisphere. To the left of the median line the ventricle is the seat of a sessile, grayish-red growth measuring 3.3 cm. in length, 3.5 cm. transversely, and projecting 8 mm. into the ventricle (Fig. 12). The cavity extends 2 cm. to the left of the tumor margin and has a smooth lining. The cerebellar substance covering the dilated ventricle on the left side is only 3 to 5 mm. in thickness. The under surface of the cerebellum shows marked molding at the edge of the foramen magnum.

The other gross findings are summarized in the anatomic diagnosis. It was particularly noted that nothing suggestive

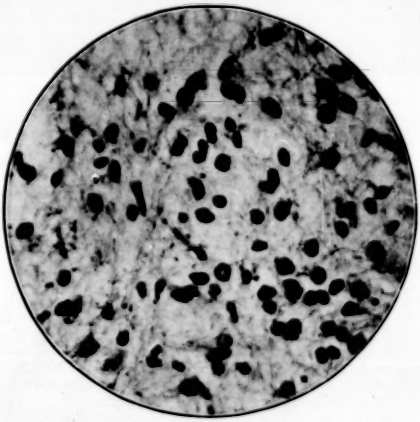

Fig. 7 (Case 2).—Photomicrograph showing glia fibers and cells.

of a syphilitic lesion was found in the body, that there was very little sclerosis of the aorta, and that the vessels at the base of the brain had soft and thin walls. The skull and dura showed no changes. The convolutions of the brain were flattened, and the lateral and third ventricles were considerably dilated. Each kidney weighed 230 gm., and the capsules were adherent. The heart weighed 330 gm.

Histologic Examination.—The structure is that of a somewhat degenerated ependymal glioma. Numerous hyaline concretions are seen (Fig. 13), mostly derived from obliterated vessels.

A Pal-Weigert specimen of the bulb shows considerable degeneration of the dorsal portion of the pyramids, adjoining the olives, while their ventral (superficial) portions are well preserved. Still more marked degeneration is found in the raphe and in the interolivary fibers. This portion of the bulb is seen in hematoxylin-eosin and Van Gieson preparations to be thickly set with pale blue, hyaline, round bodies.

CASE 6.—*Boy 5 years old. Onset with headache, then adiposity, unsteadiness, papillitis and failing vision. Genitalia said to have become smaller. Later blindness, two convulsive seizures, marked general weakness. Decompressive operation, hyperpyrexia, death. Tumor filling fourth ventricle.*

A boy 5 years old was referred by Dr. Wright C. Williams of Peoria, Feb. 16, 1914. The patient was the sixth of eight children, the others being well. In the summer of 1913 he began to suffer from headache; later he grew fat and the genitals grew smaller. In the beginning of December he was brought to Dr. Williams on account of headache and a tendency to stumble. There was a slight papillitis, especially in the right eye, and vision was considerably reduced. It failed rapidly, and he became completely blind about the first of January. Late in December there were two convulsive sei-

Fig. 8 (Case 3).—Tumor of fourth ventricle.

zures three days apart. The Wassermann test was negative with both blood and spinal fluid, and two examinations of the latter for cells were negative. Urine negative.

Examination.—Fat child with flabby musculature. Penis small; both testicles in the scrotum. Patient very weak; cannot walk or sit up unaided or hold the head erect for any length of time. Totally blind. Pupils equal and dilated. Constant rotary nystagmoid movements drawing the eyeballs upward and to the left. The movement to the left is rapid, the return slow. The eyes wink with the beginning of each nystagmoid movement. Dr. E. V. L. Brown made the following note: "Right and left optic nerve atrophy, secondary to marked choked disks; nerve head swollen (right plus 2); scleral and pigment rings not seen; retinae not involved; vessels narrow; pupils react to light only with light directly in front." Hearing normal. Apparently slight paresis of right side of face and right arm. Knee jerks absent; ankle jerks slightly increased, right more so; bilateral Babinski sign. The patient could draw the knees up but could not raise the knees from the bed. Probably no sensory disturbance. Abdominal reflexes not obtained at first, but later

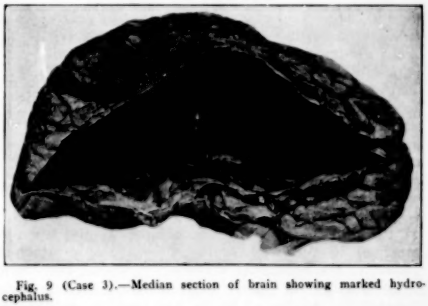

Fig. 9 (Case 3).—Median section of brain showing marked hydrocephalus.

weak response was obtained on both sides. Soft, blowing heart murmur at the base. Roentgen-ray examination showed normal sella turcica. Blood examination: reds, 4,940,000; whites, 11,000; hemoglobin, 98. Urine normal.

February 25: Right subtemporal decompression made by Dr. Dean Lewis. The brain pressure was very high. Soon afterward the arms and later the entire body twitched continually. The temperature rose to 108.6 F. before death, eighteen hours after the operation.

Necropsy.—The brain weighed 1,170 gm. Marked downward bulging of the third ventricle was noted. The hypophysis was normal. The fourth ventricle was filled by a soft tumor the greatest dimension of which was 5 cm. transversely and 3.8 cm. vertically. The tumor was connected with the pons. Unfortunately, I missed the opportunity to examine the hardened and sectioned brain, and failed to learn to what extent the pons was actually invaded. All of the ventricles were considerably distended. The tumor tissue examined microscopically was said to be made up of masses of darkly staining small round cells and to show considerable necrosis and in places small hemorrhages.

Fig. 10 (Case 4).—Tumor in fourth ventricle.

The histologic diagnosis was small round-cell sarcoma. (I have not had an opportunity to see the specimens, and know from experience that sarcoma and cellular glioma are frequently confused.)

THERAPEUTIC REMARKS

Of these six patients three were operated on, all with disastrous results. In Cases 1 and 6 subtemporal decompression was followed by death in thirty and eighteen hours, respectively. In Case 3 a suboccipital operation resulted in death on the table before the dura was opened. In Case 2 repeated lumbar puncture apparently gave temporary relief at times, but it naturally would more often be found to aggravate the symptoms. Any sudden interference with the intracranial pressure condition appears to be dangerous, and this applies to the three methods used in the present cases. The danger of death from the application of any of the usual cerebral decompressive methods, the practical impossibility of making a clinical diagnosis of intraventricular tumor, and the difficulty of access to these ventricles all conspire to place tumors of the third and fourth ventricles among inoperable brain tumors in the minds of most neurologists and surgeons. However, the writer must agree with Professor Anton[6] of Halle that operative removal of tumors of the fourth ventricle is not theoretically impossible. Some of them arise from the choroid plexus and are not attached to the walls, and others are only attached above, to the cerebellar vermes. It would, therefore, seem possible in such cases to enter the ventricle through the vermes, or below, and possibly remove the tumor, provided the pressure in the posterior fossa was not too high at the time of operation. In order to obtain a favorable pressure condition, Anton recommends operating at a period of relative freedom from headache and other pressure symptoms, and to perform a preliminary callosal puncture or puncture of one of the lateral ventricles. The only practical suggestion to offer is this one, that if symptoms strongly point to posterior fossa tumor and nothing is found in the cerebellar hemispheres, then the surgeon may go a step further and also explore the fourth ventricle, at the same sitting, if a preliminary callosal puncture has been made, or else after an interval of a few days.

6. Anton: Arch. f. Psychiat., 1911, xlviii, 523.

30 North Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr. Theodore H. Weisenburg, Philadelphia: Years ago I wrote a paper on this subject in which I reviewed the cases of tumor of the third ventricle reported in the literature. I wrote this paper because I had had three cases of tumor of the third ventricle in every one of which diagnosis of tumor of the cerebellum was made. On investigation I found that of the forty cases reported, not a single one had ever been diagnosed properly during life. I then tried to establish a symptom complex. Most cases of tumor of the third ventricle cause cerebellar asynergy; they all have internal hydrocephalus, with a paraparesis of all four limbs with the accompanying increase of reflexes. With this there is nearly always paresis of associated ocular movement upward. This symptom group would seem to be especially indicative of tumor of the third ventricle, and Dr. Bassoe's case would seem to confirm this. I believe that we can make a diagnosis of tumor of the third ventricle in life, for I have been able to do so. Tumors of the fourth ventricle are quite difficult to diagnose. Not in a single case, I believe, has a diagnosis been made in life. In most of these cases the diagnosis has been tumor of the cerebellum. Dr. Mills and I tried to show that there is such a thing as

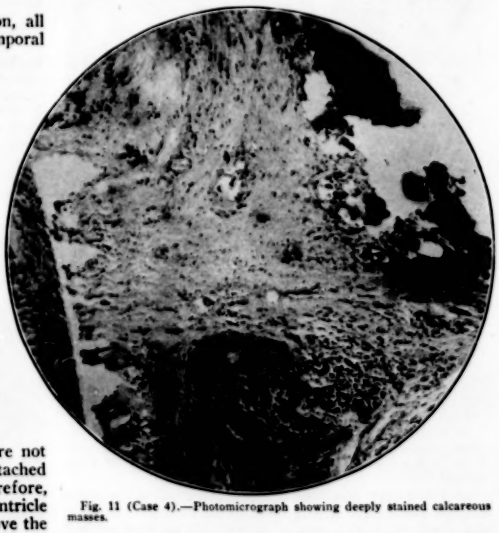

Fig. 11 (Case 4).—Photomicrograph showing deeply stained calcareous masses.

cerebellar localization. In cerebellar localization the trouble has been that there is usually no attempt to make a diagnosis of tumors in the separate parts of the cerebellum. Recently I have had two cases in which from our localization I was enabled to make an exact diagnosis. In one a tumor of the superior portion of the right cerebellum was diagnosed and operated, with removal of the tumor, and the child is now living and perfectly well. In another case, that of a man, we diagnosed tumor of the left lobe of the

cerebellum, and found and removed the tumor. Localization in the cerebellum should be advanced, that is, we should not be content to make diagnosis of tumor of the cerebellum; but should be able to say that a lesion is located in a certain and definite part of the cerebellum.

DR. TOM A. WILLIAMS, Washington, D. C.: In tumors of the third ventricle there is another sign to be found which was not brought out by Dr. Bassoe in his case report, and I do not remember whether it was brought out by Dr. Weisenburg in his original communication. The sign is one that was shown in a case we had in Washington in 1907 which was diagnosed during life and in which we had a postmortem. There were photographs in the case. Diagnosis was made of tumor in the third ventricle or of the corpora quadrigemina, involving both sides, and it was made by reason of several findings: First, because of complete ophthalmoplegia; second, from the eye grounds because of the marked choking of the disk in conjunction with the extreme rapidity of the onset; and, third, on account of the decerebrate attitude of the patient. This attitude is one that was, I believe, first described in connection with physiologic experiments, and consists of the quadrupedal progression reaction, namely: Suppose you scratch the right arm of the subject, there will immediately be, let us say, flexion of the right arm, and at the same time there will occur flexion of the counter leg, along with extension of the contralateral arm and extension of the homolateral leg; that is to say, the attitude and movement of quadrupedal progression. This is due to impulses from the spinal centers when separated from cerebral control. On that ground mainly the diagnosis in this case was made. And photographs show the child's position after stimulation of one area in various attitudes, as described, in that position, which is the position of the dog's progression. Hughlings Jackson published a case showing this attitude. I do not remember whether that was a case of this particular lesion, neither do I know whether a necropsy was obtained. The sign may depend on rapidity of onset, because it is possible that, in the gradual progress of a unilateral tumor slowly invading the third ventricle, gradual adaptation may prevent this particular syndrome or the patient may die before it develops.

Fig. 12 (Case 5).—Tumor on left side of fourth ventricle.

DR. HAROLD N. MOYER, Chicago: I saw the fifth case described by Dr. Bassoe on one occasion but the opportunity for examining was none of the best. In this case there was a striking clinical resemblance to paretic dementia. The symptoms would become very pronounced, then subside, and his conduct in the periods of euphoria, which were marked, strongly suggested paresis. He was distinctly paretic on the left side and persistently leaned forward and to the left; he would straighten up, but would soon automatically resume this position. I expressed the opinion that he had a brain tumor but of its location I had no idea. I certainly never suspected that it was a subtentorial growth. Dr. Bassoe says the eyegrounds were normal. At the time I examined him it seemed to me that the left disk was somewhat altered but not significantly so.

DR. LAWSON G. LOWREY, Hatlorne, Mass.: About a year and a half ago I made a necropsy on a case presenting a tumor presumably arising in the third ventricle and extending from there into the lateral ventricle. For two years the patient had been in Danvers Hospital with a diagnosis of paresis. The symptoms were largely those of paresis, the onset had been rather gradual, the individual was dull, extremely indifferent and had demented very rapidly, with a doubtful blood Wassermann and no satisfactory spinal fluid examination. This tumor, too, was a glioma. So far as any exact examination that had ever been made showed, there were no symptoms that might be referred to a tumor.

DR. A. L. SKOOG, Kansas City, Mo.: While these tumors of the third and fourth ventricles are difficult to diagnose, yet frequently you can suspect localization. Probably quite a number of errors have been made on account of not giving sufficient consideration to the chronology of the case. We know that in cases exhibiting these various symptoms, and particularly those referable to the cerebellum and the medullary centers, and also those due to the secondary internal hydrocephalus, there is an onset of the symptoms at different periods. I believe we should lay emphasis on carefully noting just when each symptom begins. In this respect a careful history is, of course, important. There are case histories that are accurate and others that are not.

DR. PETER BASSOE, Chicago: I must repeat what I said at the outset: that the symptoms in these tumors are caused either by pressure or invasion of neighboring organs, or by hydrocephalus. Dr. Skoog says, by a study of a sequence of symptoms we may form some opinion as to where the tumor originated. In the case of the fourth ventricle, if a tumor starts from the choroid plexus, there would necessarily not be symptoms until a certain amount of hydrocephalus was produced. If the tumor starts from the floor you may get symptoms on the part of the cranial nerves, or if it starts from the vermes you may have early localized

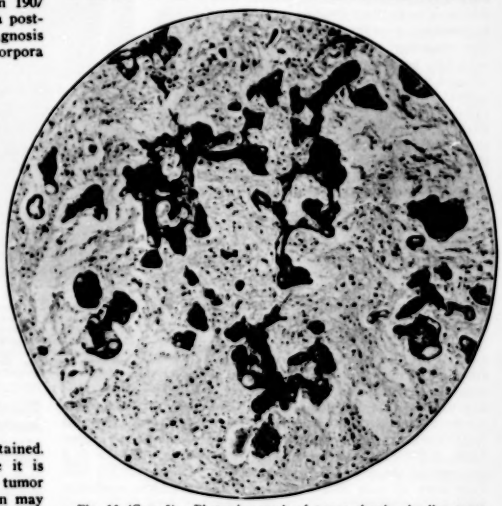

Fig. 13 (Case 5).—Photomicrograph of tumor showing hyaline transformation of vessels.

cerebellar symptoms. In the case of the third ventricle, quite necessarily the symptoms are those of hydrocephalus. We can hardly speak of any focal symptoms there unless the tumor has grown from the ependyma into the brain structure, or has started in some other structure and extended into the ventricle. In my only case of tumor of the third ventricle, the patient had a typical cerebellar ataxia. The very early loss of conjugate movements and early blindness, and the quite precocious development of hair and of the genital organs led us to suspect a tumor in the general vicinity of the pineal gland, or corpora quadrigemina, or in the third ventricle, but we did not venture to say in which of these structures the tumor might have started.

In regard to the diagnosis between tumors of the fourth ventricle and tumors starting in the cerebellum, this is extremely difficult. But if in a case with ordinary cerebellar tumor picture there is marked variation in the subjective feeling of the patient on changing position, together with quite a marked increase in cells and globulin of the spinal fluid, then I would be suspicious of a tumor in the fourth ventricle. In the case of which Dr. Moyer speaks, there was no change in the disks that I could make out, but I did not examine the patient during the last year of his life. I was told by three or four of the men who saw the case that they had never noted any change in the disks, but the patient was not under the observation of any one man during the whole period.

There is one aspect that has not been touched on here, and that is the possibility of any surgical treatment in these cases. In my three operated patients the surgical results were notoriously bad; one died on the table and the other two did not rally. Could we have done any better for those patients? It is only within a year that Professor Anton of Halle has written a paper seriously proposing operative procedure in cases of tumor of the fourth ventricle, providing it arises from the roof or choroid plexus. He says that at least half the tumors arise from the roof. By first doing a callosal puncture or puncture of the lateral ventricle, thus relieving the pressure from above, the suboccipital opening can be made with less shock. He believes it might be possible to go through the vermis, which usually has been gradually thinned out by the pressure, as was the case in some of my cases, or that we might go through the foramen Magendie, and remove the tumor. About ten years ago it was suggested by Henneberg that cysticercus cysts of the fourth ventricle might be removed in that way.

Sickness in Rural Health Districts.—During the summer of 1915 the New York state department of health made an inquiry to determine the amount and nature of sickness usually and fairly constant in rural communities. Five townships and two villages in Albany County were the subject of this survey. The district was considered fairly typical of rural New York. The population of these townships numbered 5,676, and the number included in the records 5,187, or 91.2 per cent. of the total. The number of persons admitting that they were ill was 582, or 11.2 per cent. of the population visited. An examination of 397 schoolchildren in a rural district of New York shows that 51.3 per cent. had defective teeth and 61.5 per cent. enlarged tonsils or adenoids. The total number of cases of illness in six townships and two villages was 1,242, of which 688 were not under the care of a doctor. In this survey the investigators reported that teeth defects were generally present at all ages. This investigation brought out the further fact that while school inspection pointed out the defects of the children, no means was provided for the correction of such defects, and also that most people were willing to pay a moderate price for treatment but could not pay "fancy prices."

THE PROGRESSIVE TORSION SPASM OF CHILDHOOD (DYSTONIA MUSCULORUM DEFORMANS)

A CONSIDERATION OF ITS NATURE AND SYMPTOMATOLOGY *

J. RAMSAY HUNT, M.D.
Consulting Neurologist, New York Neurological Institute
NEW YORK

The subject which I would present for your consideration is that curious form of motor disturbance known as the progressive torsion spasm or dystonia musculorum deformans.

Dec. 17, 1910, Ziehen,[1] at a meeting of the Berlin Psychiatric Society, demonstrated a child 10 years of age with a spasmodic affection of unusual type. Four similar cases had come under his observation, three in members of the same family.[2] In all, the affection had been gradually progressive and was characterized by spasm and hypertonicity of the musculature, with curious twisting and torsion movements of the extremities and trunk. The muscular spasm was considerably increased by active movement and diminished during rest. The gait and station were chiefly affected and there was marked lordosis of the spine. The tendon reflexes were present but difficult to elicit, because of the tension and torsion of the muscles. Sensation and intelligence were not affected, and, in one of the cases, necropsy had revealed no essential lesion. All of the patients were Russian Jews.

Fig. 1.—Hemiplegic type of progressive torsion spasm showing the attitude in a case of hemidystonia dextra of eight years' duration; subsequently, the left arm and leg showed evidences of involvement.

In discussing the character of the motor disturbance, he stated that while there was a certain general resemblance to the movements of chorea and athetosis, these affections as well as hysteria could be definitely excluded. He regarded the affection as a special type of the degenerative spasmodic neuroses, allied to impulsive tics, and proposed the name "tonic torsion neurosis."

In 1911, Oppenheim[3] followed with a more elaborate description of the disease, which he regarded as organic and not functional in nature, and emphasized the close relationship of the spasm to athetoid movements.

Oppenheim's cases, like those of Ziehen, began in childhood (from the eighth to the fourteenth year). All were either Russian or Polish Jews. The affection began insidiously in one of the extremities, either the leg or the arm; but eventually the muscles of the thigh, pelvis and spinal column were always chiefly affected. There was marked lordosis with clownlike, bizarre movements, and a curious disturbance of the gait which

* From the Neurological Wards of the Montefiore Home and Hospital.
* Read before the Section on Nervous and Mental Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.
* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Ziehen: Tonic Torsions Neurose, Neurol. Centralbl., 1911, xxx, 109; Allg. Ztschr. f. Psychiat., 1911, lxviii, 281.
2. Schwalbe had previously recorded this group of cases from Ziehen's Clinic as "Eine Eigenthümliche tonische Krampfform mit hysterischen Symptomen," Inaug. Diss., Berlin, 1908.
3. Oppenheim: Ueber eine eigenartige Krampf Krankheit des Kindlichen und jugendlichen Alters; Dysbasia Lordotica Progressiva, Dystonia Musculorum Deformans, Neurol. Centralbl., 1911, xxx, 1090.

suggested such descriptive terms as the "dromedary gait" or "monkey gait." In some of his cases backward progression was easier than the usual method. He also observed a tendency to clonic and rhythmic movements, mobile spasm and even tremor, somewhat resembling that of paralysis agitans. There was also a certain resemblance to chronic chorea, and still more to athetosis. The tendency to tonic muscular spasms with twisting and torsion movements was, however, the predominant feature.

Oppenheim further emphasized the association of hypotonia with hypertonia in these cases. The tendon reflexes often could be elicited only by reinforcement, and other evidences of muscular relaxation and flaccidity were present. This conjunction of hypotonus and hypertonus, the occurrence of clonic and tremor movements, and his view as to the organic nature of the affection represent the chief differences from the original description of Ziehen. He further advanced the theory that the disease is caused by an anatomic lesion in some portion of the central nervous system which controls muscle tonus, bearing in this relation a certain analogy to paralysis agitans and the double athetosis. He suggested "dysbasia lordotica progressiva" or "dystonia musculorum deformans" as better descriptive names for the disease.

In the same year Flatau and Sterling[4] reported similar cases and confirmed the clinical picture as outlined by Ziehen and Oppenheim. In their cases, the early age, insidious onset, gradual progression, the racial tendency and general character of the muscular spasm were all present. As in the original descriptions, the muscles of the face and articulation were not affected, and the torsion spasm was confined to the extremities and trunk. The movements were involuntary, tonic and twisting in character, often producing curious spiral movements of the trunk. They were not rhythmic or harmoniously bending, however, as in athetosis, and a certain monotony and stereotypy were quite evident. In their cases certain of the spasmodic movements were relieved by slight accessory movements in other parts (*Hilfsbewegungen*), suggesting the method of relief occasionally encountered in tic convulsive. Sometimes the movements were quick, like those of chorea, and occasionally were of such amplitude as to suggest the hemiballismus of Kussmaul. Occasional tremor movements suggestive of paralysis agitans were also observed. There were no true associated movements, but frequently irregular and bizarre contractions in other muscle groups accompanied a voluntary act. The tendon reflexes were not exaggerated, but were diminished or absent, and there was no hypotonia.

Like Oppenheim, they regard the affection as organic, and emphasize its close relationship to the double athetosis. It differs, however, in localization, the trunk and proximal segments of the extremities being chiefly affected and in the type of the movements, namely, the twisting, torsion spasm with sudden brusque, clonic movements, and occasional tremors. They would call the affection "progressive torsion spasm."

Fig. 2.—Posterior view, hemiplegic type of progressive torsion spasm; hemidystonia of eight years' duration.

In June, 1912, this subject was presented by Fraenkel[5] to the New York Neurological Society, and four cases of the disease were recorded, two of which have at various times been under my observation, and one I presented to the New York Neurological Society, in 1908, as an unusual case of myoclonia.[6]

Fraenkel's study verified the accuracy of the earlier clinical observations, and like Ziehen he relegated the affection to the degenerative neuroses, grouping it with tics and spasmophilias. He suggested "tortipelvis" as a distinctive designation for the affection. An excised fragment of muscular tissue from one of Fraenkel's cases was examined by Harlow Brooks and showed possibly some slight parenchymatous, but no atropic changes. In two of his cases intraspinal injections of magnesium sulphate were given with only temporary abatement of the spasm.

Since these publications, a number of observations have been recorded both in this country and abroad, showing that the disease is by no means a rare one. In this country Spiller,[7] Climenko,[8] Beling,[9] Abrahamson,[10] and Diller[11] have all reported cases which conform very closely to the original clinical picture as drawn by Ziehen, Oppenheim, Flatau and Sterling.

Spiller's case was somewhat unusual in that the patient was not of Jewish blood; two sisters were also afflicted with the disease and all were mentally defective.

I may mention that Bregman,[12] like Flatau and Sterling, failed to find the hypotonicity on which Oppenheim had laid so much stress; he also observed a myotonic reaction in the muscles of the forearm, and at times the spasm was quite painful.

In a very interesting case described by St. Bernstein,[13] the duration of the disease was twenty-five years, and for a number of years the affection had been stationary, having apparently run its course. In this case there was distinct dysarthria, which has not been noted by any other observer. This disturbance of the speech St. Bernstein believed to be a dystonic phenomenon, dependent on hypertonicity and spasm of the muscles of articulation.

As thus far the muscles supplied by the cranial nerves have not been affected in this disease, I think we should accept this observation with some caution and consider the possibility of high involvement of the neck muscles supplied by

4. Flatau and Sterling: Progressiver Torsions Spasmus bei Kindern, Ztschr. f. d. ges. Neurol. u. Psychiat., 1911, vii, 586.

5. Fraenkel: Dystonia Musculorum Deformans-Tortipelvis, Jour. Nerv. and Ment. Dis., 1912, xxxix, 361.

6. Hunt, J. Ramsay: A Case of Myoclonia of the Trunk Muscles, Jour. Nerv. and Ment. Dis., 1908, xxxv, 656.

7. Spiller: Case of Dystonia Musculorum Deformans, Jour. Nerv. and Ment. Dis., 1913, xl, 529.

8. Climenko: Case of Dystonia Musculorum Progressiva, Jour. Nerv. and Ment. Dis., 1915, xlii, 167; Med. Rec., New York, 1914, lxxxvi, 1000.

9. Beling: Case of Dystonia Musculorum Progressiva, Jour. Nerv. and Ment. Dis., 1912, xxxix, 461.

10. Abrahamson: Case of Dystonia Musculorum Deformans, Jour. Nerv. and Ment. Dis., 1913, xl, 38.

11. Diller: Dystonia Musculorum Deformans, with Report of a Case, Jour. Nerv. and Ment. Dis., 1916, xliii, 337.

12. Bregman: Zur Kenntniss der Krampfzustände des jugendlichen Alters, Neurol. Centralbl., 1912, xxxi, 885.

13. St. Bernstein: Ein Fall von Torsions Krampf, Wien. klin. Wchnschr., 1912, xxv, 1567.

the upper spinal nerves and its possible secondary effect on articulation.

To summarize, the progressive torsion spasm is a disease of childhood first described by Ziehen, and with rare exceptions has been confined to descendants of Russian and Polish Jews. It is essentially a progressive torsion spasm of the trunk and extremities, often associated with hypotonia and sometimes with movements of a more clonic or rhythmic character, suggestive of chorea and athetosis. Tremor movements are occasionally noted. The characteristic feature is the twisting and tractile quality of the spasm with the attendant distortion of the trunk and extremities, and the bizarre disturbances of posture, gait and station. Sensation is intact, and there are no symptoms of pyramidal tract involvement. It is a progressive affection with a limited symptomatology, and may eventually become stationary.

ANALYSIS OF PERSONAL OBSERVATIONS

Symptomatology and Types.—Six cases of this curious disease have come under my personal observation, all of the patients being at various times in the neurologic wards of the Montefiore Home and Hospital, which affords an unusual opportunity for prolonged and systematic observation.

In all the clinical picture corresponded very closely to the descriptions of Ziehen, Oppenheim and Flatau. In all of the cases save one, the affection began in childhood (6, 8, 9, 10 and 11 years, respectively), the exception being a typical case in which the first symptoms appeared at the age of 17 years. The sexes were equally divided, and all the patients, with one exception, were of Jewish origin.

The affection uniformly made its first appearance in one of the lower extremities, in four of the cases an interval of from one to two years elapsing before the opposite limb was involved.

In one case, the distribution in the extremities was hemilateral for a period of nine years (Figs. 1 and 2). In no case was the hand or arm the seat of primary involvement, although the upper extremities were affected in the later stages in three cases.

Fig. 3.—Paraplegic type of progressive torsion spasm of six years' duration; the symptoms of dystonia are limited to the lower extremities and lower portion of the trunk.

The lower portion of the trunk and the lower extremities were always most constantly and most severely affected, and a slow but definite progression was noted in all of the cases without exception. The muscles supplied by the cranial nerves were not affected, namely, those subserving the functions of articulation, facial expression and the ocular excursions. In one of the severe cases with high involvement of the neck muscles, there occurred, during an access of the motor paroxysm, slight contractions of the lower portion of the face, which I regarded as purely secondary, the result of a great effort to counteract the spasms.

In one of the cases the motor disability was so severe and so distinctly limited to the lower extremities as to suggest a paraplegic or pseudoparaplegic type (Figs. 3 and 4).

The character of the motor disturbance varied somewhat in the different cases, in this harmonizing with the reports of other observers. The tonic or hypertonic form with slow, torsion, twisting spasms of large muscle groups of the trunk and extremities predominated and was observed in all of the cases. Deforming functional contractures accompanied this type, which could always be overcome by strong passive movements. Especially characteristic in some of the more advanced cases has been a plantar flexion of the foot with extreme flexion of the toes producing a marked incurvation of the plantar surface (the semilunar foot, Fig. 5).

There was also a more active stage, characterized by movements of clonic or rhythmic character, accompanied by great motor agitation and unrest, suggesting somewhat the restlessness of chorea or athetosis. Two of the cases belonged to this type and produced the clownish movements, the bizarre postures and progression which suggested to Oppenheim such descriptive terms as the "dromedary gait" and the "monkey gait." In these cases the face was flushed, there was sweating and tachycardia, and the general motor excitement was at times so extreme as to be most distressing and alarming, requiring at certain periods morphin and scopolamin for relief. In two patients running was better performed than walking, and retrograde progression was also noted. In the other patients, the spasm was more tonic and much less active in character, and in bed or in a chair they rested with considerable comfort. In the late stage of this more tonic form a pseudoparalytic condition supervened, which was not paralysis in the ordinary sense, for some power of movement was retained, but paralytic so far as any voluntary control of the extremities was concerned.

Definite hypotonia was present in four of my cases, and in two it was absent, so that I do not regard this as a constant symptom in all stages of the disease. The tendon reflexes were present in all, although usually elicited with difficulty, and often only after repeated attempts, or during some favorable moment of relaxation. Hypertrophy of certain muscle groups was occasionally observed, as well as slight general wasting in the late stage, but without degenerative electrical changes.

None of the characteristic phenomena of myotonia were demonstrable in any of my cases.

There was no intelligence defect, and all of the patients were of average mental development. There were no hysterical manifestations or stigmata, and in none of the cases was there any tendency to stammering, impulsive speech, fixed ideas or phobias, which are so common in the degenerative motor neuroses. Nor were there noted any of those slight movements (*Hilfsbewegungen*) for the relief of spasm, so often present in cases of torticollis, such as laying the forefinger on the chin.

All of my patients would assume a definite fixed position while sitting or recumbent, which gave them most relief from the spasm. Occasionally, certain voluntary movements of an arm or leg would be made to influence or alleviate the severe spasm, experience showing that such movements had a relaxing effect on the dystonic disturbance. This was not, however, a psychic mechanism, and similar manifestations are occasionally observed in athetosis.

Remissions and Exacerbations.—Generally speaking, the disease was always gradually progressive. Occasionally, a slight improvement or remission was noted in some of the cases, but this was always of comparatively short duration.

A rather sudden progression occurred in one case while under observation (Fig. 6). This was an advanced type with involvement of all four extremities and the trunk. The spasm made its appearance rather suddenly in the neck muscles, which had up to that time been free. This nuchal spasm grew rapidly worse, and the attempt to control it seemed to disorganize the entire motor stability of the patient, and there ensued a period of about six weeks during which the child rolled and tossed in a veritable agony of movement. No position was found that would give relief, and I recall few more distressing spectacles than that of this child with a perfectly clear mind, struggling days and nights in the grip and conflict of these massive involuntary movements. During the few hours of sleep which came on after exhaustion, there was complete repose, but on regaining consciousness the spasms and torsions returned with unabated violence. Morphin and scopolamin were given to alleviate the suffering, and it really looked for a time as if fatal exhaustion would ensue, but the spasms finally grew less violent, it became possible to find a position which gave relief, and eventually the former conditions were resumed — the patient being chair-ridden and in certain postures fairly calm, with only occasional dystonic or torsion spasms. The control of the neck muscles was left permanently impaired, however, so that now no movement of the head is possible without strain and consecutive spasm (Fig. 7).

Fig. 4.—Posterior view, paraplegic type of progressive torsion spasm; dystonia paraplegica.

It would seem, in an exacerbation of this kind, as if the further impairment of what remained of this controlling mechanism jeopardized the compensatory stability which had been acquired during the gradual progress of the malady.

The Character of the Movements and the Nature of Torsion Spasm.—The movements varied in quality and character in the different cases and at different stages of the disease. There was always spasm, occasionally tremor, and sometimes movements of a choreiform or athetoid type.

In the early stage when an extremity is first affected, there is a disturbance in the harmony of movement; the foot turns outward or inward in walking, or the leg is thrown abruptly outward. In one case, a fine tremor movement always preceded and accompanied the spasm. Later, the spasm becomes more and more prominent and assumes the characteristic features of twisting and torsion, a variable hypertonia or dystonia in which the various muscle groups contract and relax. When the disease is well advanced, it is my experience that during rest those muscle groups showing spasm are more or less constantly in spasm, while their antagonists are usually relaxed and hypotonic.

The torsion spasm shows, therefore, a certain monotony or stereotypy after it is well advanced, and at rest the only signs may be repeated dorsal flexion of an ankle with an occasional spasmodic flexion movement of the knee or hip.

Any active movement, however, especially the effort to stand or walk, brings on a much wider dissemination of the spasm. The limbs are then drawn into weird postures or thrown out at strange angles, and walking or standing is quite impossible without assistance (Figs. 6 and 7). These are not true associated movements, but are associated dystonic phenomena.

In this stage the great involvement of the trunk muscles and hip girdle is quite apparent, producing lordosis with prominence of the buttocks and lateral distortion of the trunk from spasm of the erector spinal group and abdominal muscles. When the patient attempts to stand in this stage of the disease, there is not the normal postural fixation of the muscles. Instead, the muscles pursue quite independently their respective hypertonic and hypotonic tendencies, and the involuntary nature of the dystonia becomes very evident.

There is in this late stage not only an absence of postural reactions of the normal tonus in standing, but also definite disturbance of the voluntary control of tonus in the affected muscle groups. For example, if the effort is made to carry out a plantar flexion of the foot when the foot is in dorsal spasm, the only response is a further increase of the extensor spasm, the exact reverse of what the voluntary effort is attempting to accomplish. The command is understood, the effort is made, but the antagonist which is in a state of hypertonia receives the impulse and not the agonists. This effort may be repeated over and over again with the same result. If, however, the request is made for a dorsal flexion of the foot, which is already in a state of strong dorsal flexion, instead of there being an increase of the already existing dorsal flexion, there is a sudden movement in a reverse direction, that is, a plantar flexion. In other words, there is an inability to dissociate harmoniously the essential tonus elements of a simple movement, namely, contraction of the agonists and decontraction or relaxation of the antagonists. A similar reversal of normal voluntary movement may also be observed when the foot is in strong plantar flexion, that is, an attempt to extend the foot only increases the already existing plantar flexion, whereas a voluntary effort in the direction of the already existing flexion produces a reverse movement in the opposite direction. This phenomenon I

would designate the paradoxical or reverse phenomenon of dystonia, and would emphasize its diagnostic importance in the differentiation from spastic, hysterical and other forms of spasmodic contractures. It is, I believe, a pathognomonic sign, but thus far I have observed it only in advanced cases in the pseudoparalytic stage. It was typically present only in the ankle joint, and in one case in the wrist joint as well.

The difficulty in motion is therefore not only that of overcoming spasm; this we see in spasticity and the rigidity of paralysis agitans; but also a disharmony between the contraction and relaxation of agonistic and antagonistic groups of muscles. Some observers, notably Lewandowsky,[14] regard the essential element in athetosis as an inability to dissociate movements, so that any single voluntary effort is split up into numerous associated movements. In contrast, I would regard the essential disturbance in torsion spasm or dystonia as an inability to dissociate the tonus elements of innervation, which are the underlying factors in every movement. There is in addition the absence of that inhibition or control which is a characteristic of all involuntary movements, such as tremor, chorea and athetosis, and which is an especially important factor in the regulation of the tonus mechanism.

Unusual Clinical Types.—In my series of cases, there were two which presented somewhat unusual features and might simulate other forms of organic disease of the central nervous system. For this reason the clinical histories will be given in more detail.

Case 1.—This was a case of the hemiplegic type of progressive torsion spasm (Figs. 1 and 2).

Case 2.—*Paraplegic type of progressive torsion spasm* (Figs. 3, 4 and 5).—A girl, aged 12 years, of Jewish parentage; gives no family history of any similar disease. The birth was normal and she was breast fed until the fifteenth month. Her early development was normal. She had measles at the age of 3.

Onset.—The first symptoms of torsion spasm appeared at the age of 6 with a dragging of the right foot and a tendency to throw the right leg outward in an aimless manner while walking. A plaster-of-Paris cast was applied for three months without improvement. During the course of the next few months the muscles of the right foot and leg became more drawn and contractured. One year later the left leg was similarly involved. These symptoms have gradually progressed, and since the age of 9 she has been unable to stand or walk. Numerous tenotomies were performed without material benefit.

The face, speech, arms and trunk muscles are not affected.

At this time (ninth year) the child was brought to the Vanderbilt clinic for examination. The lower extremities were then in a state of tonic spasm; the legs were extended; The feet and toes in plantar flexion. Some of the muscle groups of the legs showed momentary hypotonia. The trunk was not affected. The tendon reflexes were elicitable with difficulty. There was no clonus, and the plantar reflex was difficult of interpretation because of the marked plantar spasm of the foot and toes. The Babinski phenomenon, however, was not present. The muscles were in a state of hypertonicity, and there was only moderate torsion spasm. No associated movements were noted. The movements of the arms were normal, and the supinator, biceps and triceps jerks were normal. The abdominal reflexes were active. The movements of the face, mastication, articulation and the ocular excursions were quite normal. The pupils were equal with prompt responses. Intelligence was normal.

This case at this time was regarded as one of dystonia musculorum deformans of unusual type, although the resemblance to a spastic paraplegia with contractures was rather striking. Subsequently, a bilateral subtemporal decompression was performed at the Polyclinic Hospital, presumably for the relief of a supposed cerebral lesion. The child made a good recovery from this operation, which naturally was without effect on the subsequent course of the disease.

Two years later she was admitted to the neurologic wards of the Montefiore Home and Hospital.

Since the previous examination there has been a distinct progression of the spasm upward, with involvement of the hip girdle and lower portion of the back and abdomen. In the recumbent posture there is marked torsion spasm of the muscles of the erector spinae group in the dorsolumbar region on the left side. The corresponding muscle mass on the right side is somewhat relaxed, and there is a constant massive torsion and twisting with variable scoliosis and kyphoscoliosis. The lower portion of the abdominal wall also participates in the spasm.

The right lower extremity is extended and the foot is held in a position of extreme plantar flexion including the toes, producing a conspicuous concavity of the plantar surface (the semilunar foot [Fig. 5]). Some of the muscle groups are hypotonic and others hypertonic and in spasm, which fluctuates in intensity from time to time. Occasionally, the leg will be drawn up in sudden flexion.

Fig. 5.—Paraplegic type of progressive torsion spasm (recumbent posture). Note the general wasting of the calf muscles, and the semilunar foot.

The position of the left lower extremity is changed from time to time by slow constant flexion movements of the knee and hip. As on the right side there is an exquisite semilunar deformity of the foot with plantar spasm of the toes.

With the fluctuations in the hypertonicity, a hypotonus of certain muscle groups is quite evident on palpation. Active or passive movements produce a considerable increase in the tonic phenomenon with spasms and distortion of the extremities. There are no tremors, athetoid or choreiform movements, and no true associated movements. Any of the contractures may be overcome by firm traction and pressure, and there is no structural fixation of the joints.

There is some, but very slight power of voluntary control of extremities, so great is the degree of the dystonic disturbance. In the distribution of the involuntary spasms there is a certain monotony and stereotypy, so that it varies in localization but little from day to day. The child is fairly comfortable in the recumbent posture of election, but any change from this position increases the tendency to involuntary spasm and strain. In attempting voluntary movements of the ankle the paradoxical or reverse phenomenon of dystonia is very evident; for example, if the foot is in a state of tonic dorsal extension and the command is given to flex the foot, the result is an increase of the extension spasm. If the command is now given to extend the foot, that is, a voluntary effort in the direction of the involuntary spasm, the reverse movement takes place and vice versa if the foot is in plantar spasm. The same phenomenon may sometimes be demonstrated in movements of the knee, but is especially characteristic and well marked in the ankle.

An attempt to carry out a certain definite movement of an extremity is accompanied by tonus disturbances in other groups of muscles of that extremity, and even on the opposite side.

The child is unable to stand alone, but if supported on either side, the muscles of the legs and hip girdle fail to respond to the postural reflexes, and the variable spasm and

14. Lewandowsky: Ueber die Athetose doublé, Deutsch. Ztschr. f. Nervenh., 1905, xxix.

relaxation goes on involuntarily and in a perfectly aimless manner. The legs will be suddenly drawn up, or there is performed a series of slow involuntary scratching-like movements with the foot, but there is not the slightest trace of any coordinated effort on the part of the legs to stand or support the trunk. In this position the spinal column is perfectly free and mobile, but its lower portion tends to be drawn by spontaneous contraction into kyphoscoliosis.

The knee jerks are elicited, but with difficulty, and this is especially true of the Achilles jerks. The plantar reflexes cannot be tested very satisfactorily owing to the marked plantar spasm. There is no Babinski response. The abdominal reflexes are active. The arms, upper portion of the trunk, neck and all muscles supplied by the cranial nerves are normal in every particular. The sensations are normal. The musculature of the lower extremities below the knees is generally atrophic, but this is a secondary atrophy and there are no qualitative changes in the electrical reactions. The pupils are equal and react. The mind is perfectly clear, and intelligence is of normal standard. The optic disks are normal.

The urine, Wassermann test of the blood and the visceral examinations are all negative.

Comment.—This case is of unusual interest because of the paraplegic localization of the dystonic disturbance, the early appearance of the paralytic stage, and during the earlier period the moderate degree of involuntary torsion movements, thus simulating a spastic paraplegic state.

Fig. 6.—Advanced case of progressive torsion spasm; involvement of the trunk, neck muscles and all four extremities. Note the bizarre, clownish attitude and the poorly developed musculature of the lower extremities.

NATURE OF THE DISEASE

In agreement with Oppenheim and most subsequent observers, I regard the progressive torsion spasm as an organic affection of the central nervous system. In favor of this view may be mentioned the gradual progression, the peculiar characteristics of the motor disturbance, its association with tremor, choreiform and athetoid movements, the gradual generalization of the spasm until the entire voluntary musculature is involved, sparing only the muscles supplied by the cranial nerves, and finally the absolute chronicity of the clinical picture.

There is also important negative evidence in the absence of hysterical stigmata and the mental characteristics of the convulsive tic, which usually play so important a rôle in the functional motor neuroses of hysterical or psychogenic origin.

Any attempt to localize the lesion in the present state of our knowledge is purely a matter of conjecture. It is, however, not without interest to theorize in this particular, so that when an opportunity is offered for pathologic investigation, the various theories which have been offered may be confirmed or refuted.

In a recent pathologic study of the juvenile paralysis agitans, I found as the essential lesion an atrophy of the motor cells of the globus pallidus system,[15] that is, not only the large multipolar cells of the globus pallidus proper, but also the large multipolar cells of similar form which are scattered among the smaller ganglion cells of the putamen and caudate nucleus. I therefore regard the juvenile paralysis agitans as a true system disease limited to the efferent motor cells of the globus pallidus mechanism, and consider this to be the essential lesion underlying the paralysis agitans syndrome. In other words, this motor mechanism of the corpus striatum plays an important rôle in the control of the extrapyramidal motor system, through its connection with the red nucleus, the corpus subthalamicum and substantia nigra, an essential element of which is the regulation of tonus. In the corpus striatum of Huntington's chorea, these large motor cells are preserved in both the putamen and caudate nucleus amid the extensive atrophy and disappearance of the smaller ganglion cells. These smaller cells apparently exercise a coordinating and inhibiting influence on the large motor cells of the globus pallidus system, and when this inhibitory function is lost, there results chorea of the Huntington type; the Vogt[16] syndrome and Wilson's[17] syndrome of the corpus striatum representing, according to my conception, different degrees of involvement of these two cellular systems, the one motor the other coordinating and inhibitory.

I would therefore regard the corpus striatum as a subordinate motor mechanism, having as its chief function the control of automatic and associated movements.

This interpretation of the functions of the corpus striatum is not without interest to the subject under discussion, for many of its symptoms are also encountered in dystonia.

All writers on the subject of the progressive torsion spasm emphasize its close relationship to athetosis and the frequent occurrence of tremor and choreiform movements, so that in any future pathologic investigation the cells and fiber systems of the corpus striatum should receive careful study.

My own conviction is that a lower type of mechanism is at fault, one which is closely associated with the corpus striatum, but which is engaged in the regulation of tonus, especially in its relation to the reciprocal activities of agonistic and antagonistic muscles, for this I believe constitutes one of the essential factors in the motor disturbances of torsion spasm. The preservation of facial expression and articulation is also against a localization in the corpus striatum, for we know from many pathologic studies that the face and articulation are both involved in this localization.

CONCLUSIONS

As a result of this clinical study, the following conclusions may be suggested:

The progressive torsion spasm of childhood (dystonia musculorum progressiva) is a progressive organic affection of the central nervous system.

There is the gradual loss of a mechanism which is engaged in regulating and controlling tonus during the voluntary, automatic and reflex activities of muscles. As a result, there is a disturbance or loss of those reciprocal tonus activities of agonistic and antagonistic muscles which are a part of every complex or synergic movement. This, together with the loss of inhibition, I regard as the chief factors in the production of the motor disorder.

15. Hunt, J. Ramsay: Progressive Atrophy of the Globus Pallidus, Tr. Am. Neurol. Assn., May, 1916.

16. Vogt, Cecile: Syndrome du corps strié, Jour. f. Psychol. u. Neurol., 1911, xviii, 479.

17. Wilson: Progressive Lenticular Degeneration, Brain, 1912, xxxiv, 295.

It is a definite disease, and, like such affections as paralysis agitans, double athetosis and dyssynergia cerebellaris progressiva,[18] runs a progressive course and then remains stationary, other portions of the nervous system remaining unaffected.

It is closely related to athetosis and yet in its typical form is readily differentiated from this affection. Transition or combined forms probably occur.

It is essentially a disease of childhood, but has appeared as late as the seventeenth year.

The face and muscles of articulation are not affected except in the terminal stage, when there is involvement of the muscles of the neck. Such mild disturbances as have then been noted are probably of secondary origin.

With the characteristic torsion spasm there is usually but not always associated a not inconsiderable degree of hypotonia.

There may be a hemilateral involvement of the extremities which may exist as such for some years. A pseudoparaplegic or paraplegic type may also occur.

The torsion movements continue, but are diminished during rest, and are greatly increased by any muscular activity, especially standing or walking; they cease entirely during sleep. Other disorders of motility, as tremor, chorea or athetosis, are frequently associated.

The trunk and lower extremities are chiefly affected, especially their proximal segments.

In the later stages there is often a well-marked tendency to stereotypy or fixation in the distribution of the spasm, which predominates in certain muscle groups. In this stage, I have observed in the movements of the ankle, and less commonly of the wrist, a curious reversal of the normal manifestations of tonus which may be termed the paradoxical or reverse phenomenon of dystonia. When present it is, I believe, a pathognomonic symptom.

Fig. 7.—Advanced case of progressive torsion spasm in the recumbent posture of election (see Fig. 6).

The affection varies considerably in the degree of motor unrest and agitation which is produced. This may occasionally assume sudden and violent proportions requiring strong sedatives and reducing the patient to a dangerous state of exhaustion. It may occasionally constitute an agitated form or stage of the disease.

The affection is progressive and incurable and, with few exceptions, has appeared only in descendants of Russian and Polish Jews.

20 West Fiftieth Street.

ABSTRACT OF DISCUSSION

Dr. Hugh T. Patrick, Chicago: This is a rare opportunity to see a typical example of this interesting malady. But first it might be of some interest and, perhaps, of some value, to state very briefly the error I made on this case about three years ago. This boy, by the way, is not of Polish-Jewish origin. The parents are Hebrews, but both father and mother say that so far as they know none of their antecedents have been of the Russian-Jewish folk. When I first saw this boy in September, 1913, the condition had been progressing for about five months. He was then 7 years of age and the family and personal histories were absolutely negative. His symptoms began with a tonic contraction of the right leg. Then a little later there was added to this tonic contraction occasional jerks which we might call clonic spasm, but which were simply a jerk of the leg. The diagnosis I made was hysteric monoplegia, for the following reasons: The boy held the right leg semiflexed or partly flexed at the knee and hip. He walked in a peculiar way which was strongly indicative of functional disease. Before Ziehen presented this subject, an assistant of his had shown the cases and thought the condition was hysteric. Oppenheim was also inclined to make a diagnosis of hysteria in his first cases. I do not say this to excuse myself, but to put on their guard those who may subsequently see these cases. This boy walked in a very peculiar way, and we know that most of the bizarre, nontypical gaits are very apt to be manifestations of hysteria. He would advance the affected leg, touch the toe to the floor and then hop with the left leg. When I requested the boy to extend the right leg he apparently tried to do so, and then there were these intermittent jerks in the leg and he was unable to extend it. In the act of turning a somersalt the affected leg straightened at the knee in a perfectly normal way.

I believe that at that time the left leg was already beginning to show involvement. When I began to examine it there occurred a slight tonic extension and when requested to move the foot at the ankle the boy was unable to do so. This I also attributed to functional disease. In other respects results of examination were negative. The subsequent history was given me by Dr. Haass, but I ought to say that later the case was seen by Dr. Camp of Ann Arbor, who first made the proper diagnosis. Later a well-known Eastern neurologist considered it a case of Wilson's disease. The especial value in seeing one of these cases is to learn the peculiar type of movement. It is a combination, as Dr. Hunt has indicated, of various types of hyperkinesia. There is something of the choreic, there is something of the tics, there is something of the athetosic. One particular feature in these movements is a sudden, quick movement, even quicker than most of the tics, that occurs occasionally. Most of the movements are rather slow, but occasionally there is this sudden quick jerk, generally extensor. This is a symptom which is so disconnected from all other organic movements that it is particularly valuable in the interpretation of this suppositious dissociation, because there is something there certainly more than dissociation; it is either an excess of impulse, or an absence or a great diminution of inhibition.

Dr. E. W. Haass, Detroit: Dr. Patrick has given a brief preliminary history of this boy whom I saw a little over two years ago, he then having been ill something over a year. When I saw him first he was practically in this condition of helplessness. Diagnosis had already been made by Dr. Camp, who had been observing the patient for about six months before he was brought to me. Previous to this there had been a diagnosis of hysteria and for a short time a diagnosis of beginning pseudohypertrophic paralysis. A piece of the calf was taken for examination by Dr. Camp with a finding of simple atrophy. There is nothing in his family history. His eye reflexes are normal; ocular movements are normal; the deep reflexes, as far as elicited (it is very difficult to get these reflexes), are apparently normal; the superficial reflexes are all present. There are no sensory disturbances whatever; there are no electrical disturbances. He has had a diagnosis of Wilson's disease since Dr. Camp diagnosed the case. But his mentality has not been affected at all. Wilson's disease is a progressive lenticular deterioration plus mental deteriora-

18. In addition to the references already given, the following will be found of interest:
Bonhoeffer: Torsions Spasmus, Neurol. Centralbl., 1913, xxxii, 137.
Beach: Torsions Krampf, Neurol. Centralbl., 1915, xxxiv, 654.

tion plus a condition of biliary cirrhosis. The hepatic disturbances, however, have never been determined, except on postmortem. As far as we can ascertain the liver is normal in size and he responds entirely normally to the phenoltetrachlorphthalein test. This spring he was subjected to this test and his liver is able to excrete dye in an entirely normal manner. He is at rest during sleep. His motions are very much exaggerated during excitement, as here at the present time, and he has been in this condition of practical nonprogression now for a year and a half. It began in his right leg and involves this extremity more than the left and, perhaps, his right arm more than his left. The duration of the case is now about three years and three or four months.

DR. A. L. SKOOG, Kansas City, Mo.: Are there any restrictions to joint movements in the late stages.

DR. JAMES RAMSAY HUNT, New York: As to the diagnosis of this distressing condition, if one has seen a few cases it is generally pretty easy, certainly so far as the differentiation from hysteria or the spasmodic tics is concerned. But even after I was fairly familiar with this disease, in the dystonia paraplegica I was uncertain as to the diagnosis for a considerable time. The localization in this case was limited to the lower extremities, the involuntary movements were very slight, and it was difficult to distinguish between the torsion spasm and a spastic condition, although there was no clonus and the Babinski reflex was not present. With the extension to the trunk and as the torsion quality of the movements became more evident, all diagnostic doubts were removed.

In none of my cases was there any permanent fixation of the joints. Strong passive movements were always sufficient to overcome any deformity resulting from the spasm. I would also lay great stress on the absence of involvement of the face and muscles of articulation, in excluding the double athetosis. The paradoxical phenomenon of dystonia, when present, I believe to be a pathognomonic symptom of this disease and an important differential sign in excluding other forms of muscular spasms. Thus far I have encountered it only in advanced cases in the paralytic stage; it is then especially characteristic in the ankle and sometimes the wrist joint. Apparently, the affection must reach an advanced stage before a complete reversal of the tonus innervation is possible. It is very significant that we have here a disease which affects principally the muscles of the trunk and extremities. It is not only an inability to dissociate tonus impulses to agonistic and antagonistic muscles, but there is also an absence of the normal inhibition or control. The disturbance apparently results from the loss of a mechanism which is engaged in regulating and distributing tonus impulses to the voluntary muscular system.

Armies as Disease Carriers.—There have been recorded many specific observations of the introduction or distribution of disease in the civil population by the movements of armies or return home of soldiers from a distant war. The diffusion of typhus in Europe by the Napoleonic wars, the introduction of syphilis into Scotland by Cromwell's troops and into Sweden in 1762 by the Swedish troops returning from the Seven Years War, are examples. During Napoleon's Egyptian campaign nearly every soldier out of an army of 32,000 men was affected by trachoma, and the return of these soldiers initiated a spread of the disease through almost all the European armies. The great European epidemic of smallpox of 1871, especially notable in Germany, is believed to be associated with the Franco-Prussian War. Clemow declares, indeed, that there is scarcely a war in ancient or modern times which does not furnish examples of the special distribution of disease.—Military Selection and Race Deterioration by Vernon L. Kellogg.

BACTERIOLOGIC FINDINGS IN CEREBROSPINAL FLUID IN POLIOMYELITIS

A PRELIMINARY REPORT OF THE EXAMINATION OF FIFTY CASES *

JOHN W. NUZUM, M.D.
Resident Pathologist, Cook County Hospital
CHICAGO

It is the opinion of those familiar with the bacteriology of poliomyelitis that the cerebrospinal fluid, whether obtained by lumbar puncture during life or at necropsy, is sterile. Throughout the literature there appear a number of brief reports on the isolation of diplococci and micrococci from human poliomyelitic cerebrospinal fluid, but these findings have until now been quite generally regarded as contaminations. Indeed, in the reports of the most recent investigations in the bacteriology of this disease, Rosenow[1] says, "A peculiar polymorphous streptococcus has been isolated, often in large numbers, . . . from abscesses in tonsils, . . . from the blood during life in one instance, but *not* from the spinal fluid."

Recently we[2] reported the isolation of a gram-positive micrococcus from the cerebrospinal fluid during life in eight out of nine cases of acute poliomyelitis. These findings have been extended, and the same peculiar gram-positive micro-organism has now been isolated from the spinal fluid in forty-five out of fifty cases studied. It presents both the same cultural and morphologic characteristics as does the micrococcus isolated from the brains and spinal cords in fatal human cases at necropsy.

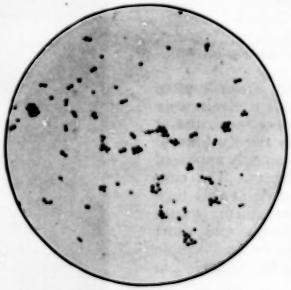

Fig. 1.—The minute form of the micro-organism as it appears in a twenty-four hour ascites dextrose broth culture of human poliomyelitic cerebrospinal fluid.

Moreover, the same organism, when injected into monkeys, young lambs and rabbits either intraperitoneally, intravenously or intracerebrally, has produced flaccid paralyses of the extremities, and in a considerable number of the cases the typical histologic changes in the central nervous system which characterize the disease in man. Paralysis has been readily produced by inoculation of cultures obtained from the human spinal fluid even in the fifth generation. Subcultures two weeks old have produced paralysis of the extremities in the *Macacus rhesus* monkey. The same micro-organism injected has been recovered in pure culture in nearly every instance both from the cerebrospinal fluid and from the central nervous system of the paralyzed animals at necropsy. Furthermore, in special stained microscopic sections of the spinal cord and medulla of these paralyzed animals, this organism is visible in the gray matter, arranged chiefly in pairs but also in short chains.

Inoculations of young lambs, which apparently are especially susceptible to the disease, with a mixture of

* From the pathologic laboratory of the Cook County Hospital.
* This work has been very materially aided by a special grant made by President Peter Reinberg and the members of the Board of Commissioners of Cook County, Ill.

1. Rosenow, E. C.; Towne, E. B., and Wheeler, G. W.: The Etiology of Epidemic Poliomyelitis, THE JOURNAL A. M. A., Oct. 21, 1916, p. 1202.

2. Nuzum, J. W., and Herzog, Maximilian: Experimental Studies in the Etiology of Acute Epidemic Poliomyelitis, THE JOURNAL A. M. A., Oct. 21, 1916, p. 1205.

many different human cerebrospinal fluids not cultured, have so far given negative results.

From a series of fifty cases of typical epidemic poliomyelitis in the Cook County Hospital, the cerebrospinal fluid was obtained by lumbar puncture during life under sterile conditions. From 1 to 2 c.c. of the spinal fluid was regularly inoculated into a series of four tall tubes containing ascites dextrose broth, ascites broth, human

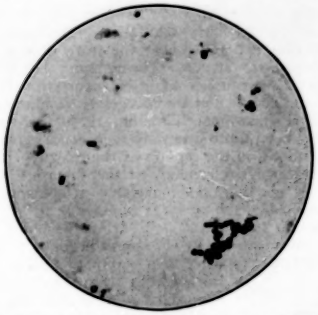

Fig. 2.—Relative size and arrangement of the micrococcus in a seventy-two hour culture of human poliomyelitic cerebrospinal fluid.

ascitic fluid and ascites broth to which a sterile piece of rabbit's kidney was added. Suitable controls were made in every case, and the tubes were incubated at 35 C. (95 F.). At the end of from twenty-four to thirty-six hours, a diffuse turbidity commonly appeared in all four tubes of the positive cultures. The control tubes remained clear. Smears made at this time usually revealed a minute micro-organism, gram-positive, and arranged in pairs, clumps and short chains. Many were so minute as to be just visible under the oil immersion lens. They corresponded in

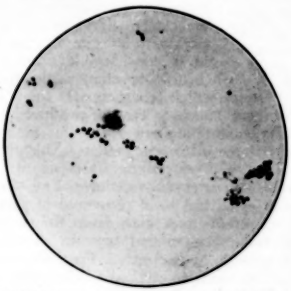

Fig. 3.—Stained smear of the sediment from human cerebrospinal fluid after prolonged centrifugalization. The micro-organism appears in the minute globoid form.

every morphologic detail to the minute globoid bodies described by Flexner and Noguchi.[3] At the expiration of from forty-eight to seventy-two hours, a fine granular precipitate appeared along the sides of the test tubes, and with the settling of the whitish precipitate to the bottom of the tubes, the diffuse turbidity of the medium partially cleared up. Smears of the cultures made at this time revealed a preponderance of the larger form of the same micrococcus. Subcultures on glucose agar slants grew out rapidly into the larger forms of the organism.

Forty-five of the fifty cases (90 per cent.) presenting the clinical picture of acute poliomyelitis yielded positive cultures with the spinal fluid. In many of these cases lumbar puncture was performed from two to four times, and in each instance the spinal fluid was immediately inoculated into the cultural mediums and a pure culture of the organism was invariably obtained. The same micrococcus was isolated in two cases from the cerebrospinal fluid within twenty-four hours after the onset of the acute fulminating type of the disease, attended in each instance by complete flaccid paralysis of all the extremities and rapid progressive paralysis of the respiratory muscles and death. That

Fig. 4.—Appearance of twenty-four hour colonies on blood agar plates inoculated with 1 c.c. of poliomyelitic cerebrospinal fluid.

the micro-organism is present in the spinal fluid for a considerable period of time after the onset of the paralysis is indicated by the fact that it was isolated in two cases fifty-nine and sixty days after the onset of the paralysis.

Control cultures were made with the cerebrospinal fluid obtained by lumbar puncture from normal individuals and with the spinal fluid of patients afflicted with diseases presenting more or less clinical similarity to infantile paralysis, such as brain tumors, tuberculous meningitis, hemiplegia, cerebral hemorrhage, tabes, tic, hydrocephalus, hysteria, and cerebral diplegia (Little's disease). These spinal fluids, when obtained under sterile conditions, were uniformly sterile. In no case was the peculiar micro-organism characteristic of poliomyelitis obtained.

It is admittedly difficult to diagnose many atypical cases of poliomyelitis; indeed, the diagnosis is usually made after the onset of the paralysis. Accordingly, any routine clinical test would be of inestimable value

3. Flexner, Simon, and Noguchi, Hideyo: Experiments on the Cultivation of the Micro-Organism Causing Epidemic Poliomyelitis, Jour. Exper. Med., 1913, xviii, 461.

in these cases. It was hoped that complement fixation tests with the blood serums and the spinal fluids of poliomyelitic patients might prove a valuable aid in diagnosis. Bacterial antigens were prepared from the cultures of the brains and spinal cords at necropsy. With suitable controls, complete hemolysis resulted in a large number of cases tested.

That the isolation of the organism from the spinal fluid may ultimately prove a valuable routine procedure in doubtful cases is evidenced by the following brief case histories:

CASE 1.—N. K., boy, aged 2½ years, was brought to the hospital by the health department with the clinical diagnosis of acute poliomyelitis. No past history was available except that the child had been vomiting and had had convulsions. He also had a weakness of the right arm.

Examination revealed a paresis of the right arm, and the child could not raise his right arm to his head. There was definite weakness of the right deltoid muscle. The pupils were unequal, the left larger than the right. Choked disk was present in both eyes. The lower limbs were spastic. Knee jerks were absent.

Oct. 11, 1916, spinal puncture was performed and clear fluid obtained under markedly increased pressure, spurting from the needle. Cultures of the spinal fluid were *sterile*.

October 23, second culture of the spinal fluid was *sterile*.

October 25, the child vomited several times, and had repeated convulsions.

October 26, third culture of the spinal fluid was *sterile*.

October 27, the child died.

At necropsy, a huge gliosarcoma of the temperoparietal lobe of the left cerebral hemisphere was found, involving the motor area of the cerebral cortex and approximately half of the entire left cerebral hemisphere of the brain.

CASE 2.—M. M., a young white girl, aged 14 years, admitted to the hospital, Oct. 17, 1916, with the clinical diagnosis of anterior poliomyelitis, for the past month had complained of headache, dizziness and vomiting. Previous to admission to the hospital she suddenly developed a paresis of the left forearm and speech disturbances.

October 17, lumbar puncture was performed and clear spinal fluid removed under increased pressure. Cultures of the spinal fluid, together with suitable controls, were all *sterile*.

October 18, the patient became suddenly comatose and died. At necropsy a sarcoma of the brain stem (medulla oblongata) with area of recent hemorrhage within the tumor mass was found.

Disease and War.—At the time of the crusade against the heretics a serious pestilence broke out in Egypt in the army of the crusaders, which had already, on Aug. 12, 1218, suffered from dysentery; it appeared in December during the siege of Damietta, after a heavy and continuous downfall of rain. "The patients," says Wilken, "were suddenly seized with violent pains in the feet and ankles; their gums became swollen, their teeth loose and useless, while their hips and shin bones first turned black and then putrefied. Finally, an easy and peaceful death, like a gentle sleep, put an end to their sufferings. A sixth of the pilgrim army was carried away by this disease, which no medicine could cure." Only a few patients who survived the winter were helped to recovery by the warmth of spring. It was unquestionably a severe form of scurvy. The besieged, too, suffered from the destructive pestilence, and also from Egyptian ophthalmia. We read further in Wilken: "A horrible sight greeted the pilgrims when they took possession of Damietta. Not only the houses, but even the streets were filled with unburied corpses; in the beds dead bodies lay beside helpless and dying invalids, and the infection of the air was intolerable. Of 80,000 inhabitants which the city had had at the beginning of the siege only 3,000 were left, while only 100 of these were healthy." Other reports say that 10,000 inhabitants survived.—Friedrich Prinzing: "Epidemics Resulting from Wars."

THE THERAPEUTIC RESEARCH COMMITTEE

OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION *

TORALD SOLLMANN, M.D.
CLEVELAND

The Council on Pharmacy and Chemistry might well have taken for its motto, "More light." In its endeavor to introduce light into the darker places of medicine, it founded its Committee on Therapeutic Research. It was hoped that the existence of this committee, and the funds placed at its disposal by the Trustees of the American Medical Association, would help to focus the attention of experimental and clinical investigators on some of the urgent but neglected problems of practical therapeutics, and help to bridge the chasm between science and its application.

The results of the work done under the auspices of this committee, during the four years of its existence, appear to demonstrate that this hope was not unfounded. As results are the best explanation and justification of the work of the committee, and the best means of extending its usefulness, I was very glad to comply with the invitation of your chairman to present a summary of these results. I shall arrange these by years.

RESULTS IN 1912

In the first year a good deal of work was naturally devoted to organization. The committee, from the outset, adopted the policy of distributing its funds over a number of institutions which promised to take up the desired problems, rather than to concentrate on one place. Similarly, it has generally followed the policy of making a larger number of relatively small grants to a number of different lines of investigation, rather than to concentrate its funds on a few pieces of work. The underlying idea in this was, that the function of the committee would be to act as a stimulus or ferment.

Investigations were published on the following subjects:

Natural and Synthetic Salicylates.—A superstition had arisen in the medical profession, mainly fostered by interested manufacturers, that the expensive so-called "natural" salicylates were more active and especially safer than "synthetic" salicylates. This matter was investigated experimentally by J. A. Waddell, and the literature was analyzed by Eggleston. Both lines showed conclusively that no basis whatever exists for the asserted difference. It was justifiable, therefore, to proceed with clinical trials, which will be mentioned later.

Duration of Digitalis Action.—The existing uncertainty as to the subject interferes greatly with safe and effective digitalis therapy. On the one hand, toxic phenomena are often elicited by those who undervalue the persistence of digitalis action and its influence on subsequent administrations. On the other hand, excessive fear of cumulative effects has deprived many a patient of the benefits of adequate dosage. The great differences which exist in empiric rules on this subject illustrate sufficiently the want of accurate knowledge. The problem can be solved only by exact experimental and clinical investigation. Observations on the

* Read before the Section on Pharmacology and Therapeutics at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

subject were published by R. A. Hatcher and Cary Eggleston.

Intestinal Antiseptics.—While the importance of intestinal putrefaction may sometimes be overestimated, there can be no doubt that it is at least a very serious complicating factor in disease. Its control would be highly desirable. This may be done to some degree by diet and cathartics, but to what degree is open to question. That these measures are not entirely satisfactory and adequate is shown by the great demand for intestinal antiseptics. However, the use of such antiseptics can do nothing but harm unless they are actually efficient. The views of physicians as to the usefulness of these antiseptics vary widely, both clinical and laboratory investigations having led to rather contradictory results. Dr. N. M. Harris therefore took up the investigation of current methods for estimating intestinal putrefaction. This was an indispensable preliminary before any direct work could be undertaken. Unfortunately, the results showed that all of the methods so far used are unreliable; and therefore, the data based on them are without value. In consequence, research energy need no longer be misdirected along these useless lines; but future investigators must concentrate their energies on finding methods adapted to the solution of this preliminary problem. Until this is done, chemical disinfection of the intestinal tract cannot be on a scientific footing.

Iodids on the Circulation.—The extensive use of iodids in circulatory disorders indicates that they have great value; but since the mechanism of their action is not known, their field of usefulness cannot be defined. In many cases, their efficiency cannot be predicted, and since results are slow, their empiric trial, in each patient, is a tedious procedure; sometimes dangerous, directly, and indirectly by delaying other treatment. It would be highly useful, therefore, to gain some insight into the mechanism of their action. Before this could be started, a critical survey of the existing literature was necessary. This was done by Dr. J. A. Capps. It brought out the fact that attempts at explanation have so far been unsuccessful. It also showed that the most promising direction for future investigation is along a different line, namely, by concentrating on the syphilitic factor in circulatory affections.

Organic Iodin Preparations.—Recent years have witnessed the introduction of a considerable number of organic iodin compounds, generally with the claim that they were more efficient than other forms, but less liable to iodism. This prompted an investigation of the pharmacologic and therapeutic value of these compounds, which was undertaken by Dr. F. C. McLean. His work was concerned mainly with the distribution and form of the iodin in different cells. It showed that some of these compounds were rapidly changed into inorganic iodid, and therefore did not differ materially from the latter. Other forms, particularly the fatty compounds, have a somewhat different distribution, so that their actions might show minor differences. Whether or not these differences are therapeutically useful is a subject for further clinical investigation.

RESULTS IN 1913

Clinical Statistics on Salicylate Toxicity.—The salicylate studies, started in 1912, were continued. Dr. Hanzlik made a thorough statistical study of the therapeutic, so-called "toxic dose" of sodium salicylate, and of the conditions which affect this. This furnished a basis for comparison of other data.

To settle finally the question of the comparative effects of natural and synthetic salicylate, the Council undertook a collaborative clinical investigation. In this, samples of natural and synthetic sodium salicylate were sent to different clinicians, the samples being unlabeled, and the collaborators being asked to report whether they could distinguish any difference between the samples, and if not, to report the results objectively. The collected results were tabulated by Dr. A. W. Hewlett. These showed conclusively that the two products were absolutely indistinguishable in their effects, so that there is no longer any reason for preferring the expensive natural to the inexpensive synthetic product.

In connection with this work, Dr. W. S. Hilpert also investigated the purity of commercial sodium salicylate. He found that the cheapest brands complied fully with the pharmacopeial requirements, so that the fear of impurities need not be entertained.

One of the salicyl-esters, salicyl-salicylic acid, was being marketed with the claim of being nontoxic. This claim was investigated by Dr. J. McLachlan. His results showed that this claim, like similar ones made for other products, was unfounded; toxicity and efficiency going practically hand in hand in all salicyl compounds. As a result of this investigation, the claim was withdrawn by the manufacturer.

Interaction of Ferments.—The extensive use of certain digestive elixirs, claiming to contain pepsin and trypsin, prompted a renewed and thorough investigation of the stability of such preparations. This was undertaken by Dr. J. H. Long and W. A. Johnson. Their results showed that much of the older work was unreliable, through the use of faulty methods. It confirmed, however, that trypsin is very much weakened in the presence of acid and pepsin, while the pepsin is not changed in neutral solutions of trypsin. Furthermore, watery solutions of trypsin deteriorate more or less rapidly, even in the absence of pepsin.

Action of Bromids.—Dr. C. W. Green and T. K. Kruse investigated the action of inorganic bromids on the circulation, as a part of an extensive investigation of bromid action. They found that the hearts of warm blooded animals are depressed; but many of the so-called bromid effects are chargeable to the bases with which the bromid has been combined.

Hexamethylenamin.—The undoubted efficiency of this substance as a urinary antiseptic has led to its extensive trial in other conditions, but without any very definite basis. Drs. P. J. Hanzlik and R. J. Collins therefore investigated the conditions under which formaldehyd is liberated. They showed in the first place that hexamethylenamin itself is not at all antiseptic, so that its efficiency depends entirely on the liberation of formaldehyd. Many of the tests formerly employed did not distinguish between the base and the liberated formaldehyd, and therefore led to faulty conclusions. By the use of the phloroglucin test it was shown that the liberation depends entirely on the acidity of the solution, being absent if the solution is even faintly alkaline. This law applies to pathologic fluids as well as to watery solutions.

The distribution of hexamethylenamin was investigated. It was found to be present in all tissues and body fluids in which it was sought; but formaldehyd was liberated only in acid urine, and in the acid gastric content. The liberation in the urine was facilitated by rendering this more acid by monosodium phosphate, and inhibited by the administration of alkalies.

RESULTS IN 1914

Hexamethylenamin Studies.—Dr. P. J. Hanzlik continued this work on various pathologic fluids. The results confirm that the liberation of free formaldehyd obeys strictly the same laws as in physiologic fluids and watery solutions, depending solely on the free acidity.

Mutual Action of Certain Digestive Ferments.—This was further investigated by Dr. J. H. Long and G. W. Muhleman. It included the action of hydrochloric acid and pepsin on amylopsin, and the action of hydrochloric acid and pepsin on trypsin, further confirming the incompatibilities. The investigations showed also that samples of pancreatin, even when dry, deteriorate gradually on the shelf, and are liable to be very low in tryptic as well as in starch digesting power. This throws further doubt on the usefulness of pancreatin preparations.

Studies in Cardiac Stimulants.—The extensive use of such drugs as strychnin and caffein in circulatory collapse made it advisable to subject them to a thorough clinical study by modern methods. The tendency of the literature of recent years has been rather to discredit their efficiency. Two series of investigations were undertaken, one by Dr. W. P. Lucas, the other by Dr. L. H. Newburgh.

Lucas observed the effects particularly on children with endocarditis occurring in the course of rheumatic fever. It was found that for these, the usual doses of strychnin and caffein were of no value. Positive effects were obtained only when much larger doses were employed, and even here the effects were very short. It is also questionable whether these effects would be at all beneficial. The respiratory actions were likewise so small and uncertain as to be negligible.

Newburgh made a study of the blood pressure in pneumonia. He found that, contrary to the ordinary opinion, the vasomotor mechanism is practically intact. Neither strychnin nor caffein in the conventional doses had any stimulating effect on the cardiovascular apparatus.

Both series of investigations agree that the use of strychnin, and the ordinary doses of caffein, in low circulation does not rest on any sound basis. While this must be disappointing to the many physicians who have placed faith in strychnin, it is much better to know that the drug does not deserve confidence, so that other measures may be tried out.

Proteolytic Activity of Pancreas Preparations.—Drs. J. H. Long and A. W. Barton made a comparative investigation on methods. They found that the commonly used methods give rather different results, varying for different preparations. The paper should lead to more rational usage in stating the strength of trypsin products.

Organic Iodin Preparations.—This subject is further discussed by Dr. F. C. McLean. He concludes that all of these preparations owe their activity to the iodin after its separation from the molecule. The rate of this liberation has some influence on their therapeutic usefulness. For instance, if a slow but prolonged effect is desired, the iodin compounds of fats and fatty acids would have some advantage; they would have no advantage when a high concentration of iodid in the tissues is desirable. The iodized proteins break up so readily that their systemic actions would not be different from inorganic iodid; they may cause less local gastric irritation.

Caffein in Myocardial Insufficiency.—In marked contrast to the inefficiency of this drug in circulatory collapse and infectious diseases are the results obtained by Dr. L. Taylor in myocardial insufficiency with retained body fluid. Full doses of the drug caused a distinct increase of urine output, with improvement in the circulatory condition. Caffein itself in these doses, however, produces distressing nervous and gastric symptoms. This can be largely avoided by the use of theobromin sodium salicylate, which is clinically superior in every respect.

Literature of Salicylates.—Information concerning the various actions of these important drugs is widely scattered through the journals, so that it is very difficult for one who intends to take up any special feature of this subject to obtain a comprehensive idea of what has been done. To make this literature more accessible, Dr. P. J. Hanzlik prepared a critical synopsis of practically the entire salicylate literature.

RESULTS IN 1915

American Liquid Petrolatums.—A collective investigation was made of their availability in comparison with the imported. The investigation, which was collated by Dr. W. A. Bastedo, settled quite conclusively this much disputed question, showing that all pure American oils are therapeutically equivalent to the imported brands.

Synergism of Opium Alkaloids.—A lengthy and comprehensive investigation has been conducted by Dr. D. I. Macht, on the one hand to settle the question of the differences between opium and morphin, and on the other hand to aid in deciding how far the claims for various proprietary products are justified. This investigation is not entirely complete. So far it has shown that the minor opium alkaloids do play a distinct rôle, which may be advantageous, but that the older claims for the proprietary preparations require considerable revision.

Synergism of Morphin and Scopolamin.—This has been investigated by Dr. H. G. Barbour, with special reference to the use of these alkaloids in obstetrics. This showed that no direct action is exerted on the uterine muscle, so that this factor at least need not be further considered. A search is being made for other substances that could be combined with morphin.

The Clinical Actions of Veratrum.—This drug had rather passed out of use; but since it produces very distinct actions, it is quite possible that it may have an important therapeutic field. Its therapeutic uses can be decided only by extensive and exact investigations, which are now being conducted by Dr. R. J. Collins.

Physiologic Activity of Combined Hydrochloric Acid.—The relative activity of free and loosely combined hydrochloric acid has important therapeutic bearings. This formed the subject of an investigation by Dr. J. H. Long.

Stability of Digitalis Infusions.—Many physicians still believe that the infusion is the most active preparation of this drug, but are deterred from its employment by the fear of rapid deterioration. This need no longer be entertained, for Drs. R. A. Hatcher and Cary Eggleston have demonstrated that the infusion does not lose in activity under ordinary conditions, during a considerable time.

Toxicity of Chloroform.—Various accidents of anesthesia suggested differences in the toxicity of the different samples of chloroform, perhaps according to

their origin. Experiments by Dr. W. Hale indicate, as far as they go, that this suspicion is not justified.

RESULTS IN 1916

In the first three months of the year, the following papers have been published:

Fate of Hypophosphites.—The use of hypophosphites is an illustration of the survival of the application of a theory, after the theory itself has entirely disappeared. The history and literature of the subject are reviewed by Dr. W. M. Marriott. This shows that there has never been any real evidence of their usefulness, any apparent benefits being undoubtedly attributable to the measures with which they are always associated. It is high time, therefore, that they should be discarded from scientific medicine.

Epinephrin in Pituitary Extracts.—W. C. Crawford has demonstrated the presence of epinephrin or a similar substance, accounting partly for the depressor effect of these extracts.

Uric Acid Solvents.—Dr. H. D. Haskins has investigated the influence of the administration of various substances on the solubility of uric acid in the urine. As might be expected, he found that the alkalinity of the urine was the most powerful factor. While the particular alkali made minor quantitative differences, sodium bicarbonate did all that could be accomplished by any alkali. The literature of urate solvents was further reviewed by Dr. P. J. Hanzlik.

Strontium Salicylate.—Interested manufacturers have long claimed a superiority of strontium over other salts. These claims were partly supported by rather loose statements in the textbooks, but had no very good foundation. The question was tested on the salicylates by Dr. M. A. Blankenhorn. The results showed that the claimed superiority is entirely fallacious, there being no difference between strontium and sodium salicylate.

A number of other problems are under way, some nearly ready for publication. Still more, of course, are to be solved. The committee will be glad to give suggestions to any one who wishes to cooperate in this wide and extremely useful field.

ABSTRACT OF DISCUSSION

Dr. F. E. Stewart, Philadelphia: The producers of bacterial vaccines met in New York last Monday and extended the date of expiration for their products from one year to one and one-half years. I have no criticism to make on this, and presume it is all right, but I would suggest that the Council take up for investigation the keeping powers of bacterial vaccines. I am frequently asked for information on this subject, but I do not know of any satisfactory experimental data warranting an opinion. An investigation of this kind would be of much value to all concerned, including the producers, the medical profession, and the public.

Mr. Frederick I. Lackenbach, San Francisco: It is this phase of the Council's work which has always appealed to me most strongly, namely, the constructive work. In editing the reports of the Council in the *California State Journal of Medicine* I have generally put these matters first—this constructive work—and frequently omitted the work of the Council pertaining to obscure proprietary preparations, since these frequently were only of passing or local interest and not read by our physicians. Physicians in many instances never have heard of these proprietary medicines which were to take up valuable space in our journal. Only matters were discussed which might be of general interest to physicians. It is of interest to every physician, for example, to know that the hypophosphites are of no appreciable value. I have taken this matter up with Dr. Puckner in my correspondence. It is this constructive work of the Council that has given it the recognition that it has at home and abroad. I for one would rather see more constructive work done by the Council and less of the critical work on proprietary preparations.

Dr. I. J. Moyer, Pittsburgh: This paper agrees with my experience with the drugs and corresponds closely with my clinical experience and I wish to go further in the investigation of some of the drugs, especially caffein. We know that in failure of compensation it is of great value. There is just one point in regard to the abolition of the hypophosphites. In tuberculosis or just preceding the onset of this disease there is a large amount of waste of the phosphates and calcium and calcium phosphate and this renders the person more susceptible to the disease. If we can supplant this and supply the calcium salts it will support the organism and replace the loss of the calcium salt and it seems to me that it is worthy of trial and investigation.

Dr. O. T. Osborne, New Haven, Conn.: I do not know of any proof that calcium hypophosphite becomes anything else in the body than calcium hypophosphite. I agree that the body needs calcium in this condition, but it must get it in some other way. As to Mr. Lackenbach, I take decided issue with him. I believe constructive work is valuable, but destructive work is equally as valuable in the drug line. We are still in the realms of superstition and if we do not wash off from our books the obsolete drugs and preparations the same as we have these hypophosphites, then we do not accomplish very much with the larger medical fraternity. The investigations of the actions and limitations of the active drugs is bound to go on, but I believe there is a larger field for the work of the Council in showing that many of the proprietaries are mixtures of more or less useless drugs. If one goes through these mixtures with a red pencil he will find that it is a minute portion of an iodid, for instance, or a small amount of salicylic acid, that is doing the work and the rest is nonsense. I believe the only official way to show this fact is through the American Medical Association.

Dr. Torald Sollmann, Cleveland: There are many preparations that the Council considers it a waste of time to take up; at the same time it aims to cover the entire field of advertised proprietaries so that the physician can find the opinion of the Council on them. This is the reason for a great deal of this condemnatory work.

THE TREATMENT BY RADIUM OF CARCINOMA OF THE PROSTATE AND BLADDER

PRELIMINARY REPORT *

BENJAMIN S. BARRINGER, M.D.
Assistant Attending Surgeon, Memorial Hospital
NEW YORK

In October, 1915, at the Memorial Hospital, we began treatment by radium of cases of carcinoma of the prostate and bladder. At this early date obviously no final results of our treatment can be predicted. In certain cases, however, our primary results have been good. This, together with the fact that the technic of the application of the radium, particularly in prostate carcinomas, is new, encourages us to give this report.

Problems presented by bladder and prostate carcinomas are so entirely different that they will be considered separately.

CARCINOMA OF THE BLADDER

The cases considered in this paper are not papillomas which may have undergone at one place or another carcinomatous degeneration, but rather flat

* From the Service of the Memorial Hospital.
* Read before the American Association of Genito-Urinary Surgeons, Washington, D. C., May 9, 1916.

sessile tumors, sometimes cauliflower, sometimes hard, sometimes multiple, generally sloughy in part. The cystoscopic picture or the rectal feel may suggest an indurated base. Microscopically they show carcinoma. Fulguration does not particularly affect this tumor.

Technic of Using Radium.—There are a number of different facts connected with these tumors which have determined our method of treatment.

1. These patients often have a great deal of pain both connected with and between urinations. We have tried not to increase their pain and discomfort; in other words, if we do not succeed in curing, we can at least say that we have not made them materially worse. We have not been altogether successful in this. The extent of the carcinoma, the presence of urinary retention, the involvement of the prostatic urethra, and other factors, seem to make it more or less impossible to determine accurately the amount of pain a patient will have from radium treatment.

2. In the first case in which we used radium, the bladder was opened suprapubically and the radium attached by hooks to the tumor. It took this man nearly three months to get out of the hospital. He had sloughs in his suprapubic wound for a long time and his physical condition at present is the worst of any of the patients treated. For this reason I have at least temporarily given up this method.

3. I believe that the problem of destroying carcinoma of the bladder by radium is, in most cases, largely one of accuracy in applying the radium to the growth. This has been the experience of those who have used radium treatment in uterine carcinoma. Therefore we have not used irradiation by means of rectal tubes or suprapubic application, but have tried to place the radium on the growth in the bladder. I have tried to use the radium in such quantities and over such periods of time that undue sloughing and burning of the normal portion of the bladder will not result.

The method which I use at present is as follows:

From 100 to 200 millicuries of radium screened with 0.6 mm. of silver and 1.5 mm. of rubber are put up so as to form a capsule about 1 inch long and one-eighth inch in diameter; to this is attached a long stout double linen thread. A direct cystoscope is introduced into the bladder, the capsule put through its sheath and the cystoscope withdrawn, leaving the radium in the bladder. The linen thread attached to the tube runs through the urethra and appears at the meatus. In women one may reintroduce a small cystoscope and see if the radium lies on the tumor. The patient remains in bed during the application. This perhaps is a crude and inaccurate way of applying the radium. On the other hand, a large majority of bladder carcinomas are in the base, and the tube of radium cannot be very far from a carcinoma in this position; certainly much nearer than a rectal or suprapubic tube would be. If the carcinoma is located on one side of the bladder, the patient is told to turn slightly toward that side while the radium is applied. The patients generally have been able to urinate without trouble during the application. Some have held their urine until the end of the irradiation, at most eight hours, and then urinated or were catheterized after the radium was removed. The urine possibly to some extent screens the vault of the bladder (all of my patients to date have had carcinoma of the base) and also lifts the bladder mucous membrane of the vault away from the radium. Whatever may be the reason, the normal bladder mucous membrane seems very resistant to radium burns when the radium is used in this way.

Duration of Radium Burns.—There is much variation in the effect of any given dose of radium. The radium does not, as a rule, change the appearance of the tumor; that is, a red cauliflower tumor generally remains red after the radium burn, but it appears to be softer, and fulguration of the tumor has a much greater effect than before the irradiation. On the other hand, sloughing sometimes occurs and persists even for a number of months. My rule is not to reapply radium until a patient has entirely recovered from the effects of the first application.

Dangers of the Use of Radium.—I have lately heard of one case in which radium was used, quantity, time or screening not known, in which the patient some two and one-half months after the irradiation died of a ruptured bladder. This case emphasizes the fact that if the tumor is at all extensive it is very difficult by the cystoscope to tell exactly the amount of bladder involved. Cystographs may help some. It is possible that further experience will indicate that, in extensive carcinomas, we should do a suprapubic observation of the exterior of the bladder. If we find that the carcinoma has penetrated the bladder, radium treatment is probably both useless and dangerous.

REPORT OF BLADDER CASES

Nine bladder tumors have been irradiated.

Extent of Growth.—In one of these cases the growth was absolutely inoperable. In another case the growth should be classed as a prostatic carcinoma with secondary invasion of the bladder. In five other cases the extent of the growth indicated that total cystectomy would have been the only operation to offer anything. In another case partial cystectomy, with the reimplantation of the left ureter, would have been possible, while in another the growth itself possibly could have been removed.

Microscopic Examination.—In six of the nine cases the diagnosis of carcinoma has been confirmed by the microscopic examination of pieces taken from the growth. I believe that in all cases the diagnosis must be confirmed by the microscope. But when once confirmed the cystoscopy and the rectal feel give us much more trustworthy data as to the extent of the tumor and the prognosis in a given case than does the microscope.

Result of Treatment.—One patient died three months after irradiation. This patient had an extensive inoperable carcinoma of the bladder base; three patients have been too recently treated to make any report. Another patient is definitely getting worse. This is the patient in whose case the radium was applied through the suprapubic opening in October, 1915. I have never been able to examine this patient with the cystoscope to see the effect of the radium on the bladder, but he is losing weight and having more frequent and more painful urination. In two other cases the symptoms are about the same, and the patient's general condition is slightly improved, but the carcinoma still persists. One of these was treated with radium about three months ago, and the other was treated several times, beginning in October, 1915. In two of the nine cases the growth has disappeared. One has only recently been examined cystoscopically, notwithstanding the radium was applied in February, 1916. In the other the growth has been absent (by cystoscopic examination) for three months. These

last two cases are of enough interest to report in some detail:

CASE 1.—C. T., man, aged 59, came to Dr. Keyes in January, 1916, and stated that since June, 1915, he had had occasional attacks of painless hematuria. In July, there had been two bloody emissions, though he had been impotent for ten years. At that time a papilloma was found, and since then he has been fulgurated four times—October 22, November 1, December 9, and January 11. Because of the return of the growth it is suspected to be carcinoma. Dr. Keyes reports a sloughy ulcer about the left ureteral orifice with definitely carcinomatous looking lumps in the edge. A piece was removed which Dr. Ewing reports as diffuse carcinoma, and the growth was burned again with the high frequency current. Three weeks later, 214 millicuries of screened radium were left in the bladder for seven hours. After the irradiation the patient went to his home and had various ups and downs, an attack of grip, etc. Three days after the irradiation and for a period of two weeks, he arose five to six times at night to urinate, but had no special burning on urination. From that time on the frequency has diminished. He was examined cystoscopically, May 2, 1916, at which time no trace of the original tumor could be detected. The entire bladder was slightly congested, and there were a few bullae about the bladder orifice. He is the picture of health, and there is no hardness felt in the prostate or the base of the bladder.

CASE 2.—C. A. G., woman, aged 69, had painful and frequent urination for one year, three or four times at night, and by day every three to four hours. She has been passing bloody urine for some time. She was examined cystoscopically some months before I saw her, and a diagnosis made of inoperable carcinoma of the bladder. Cystoscopy revealed a large red cauliflower tumor with small necrotic areas on the left side of the bladder base. I had some difficulty in determining its full extent. It probably was as large as half a dollar and sessile. It was directly over the left ureteral orifice, which could not be seen. Dr. Ewing reports carcinoma. I burned the tumor twice with high frequency current, but this had little or no effect on it, and I considered it useless to continue. January 4, I put 100 millicuries of screened radium in the bladder and left it in eight hours. The patient went out of town the next day and at the end of three days had severe bladder pain with increased urinary frequency so that she urinated every hour. Two days later she was absolutely normal as to pain and urinary frequency.

February 4, cystoscopy revealed that the tumor was gone. The ureter was in plain sight and covered with normal mucous membrane. The patient had a little pedunculated papilloma of the bladder neck, which was burned. Dr. Keyes confirmed my examination. April 28, cystoscopy revealed that there was still no tumor. She had a slight cystitis (caused by retention of urine due to a cystocele).

Whether the carcinoma in these cases will return or not, no one can say. I believe that the fact they have reacted so quickly to radium may indicate that we have eradicated the growth. Only time will tell, however.

CARCINOMA OF THE BLADDER

The problem involved in the diagnosis and treatment of carcinoma of the prostate is different from that of carcinoma of the bladder. In the first place is the difficulty in diagnosis. An extensive carcinoma which runs up into the vesicles can usually be exactly and positively diagnosed by palpation. On the other hand, a carcinoma as extensive as this is probably beyond the hope of cure. If the carcinoma, as far as can be determined by palpation, is confined to the limits of the prostate, then the diagnosis by palpation alone is sometimes not only difficult, but impossible.

In a recent case which I treated with radium there were two positive diagnoses, including my own, which was possibly biased, one of "very suspicious," one of merely "suspicious" and two indeterminate. As Geraghty has pointed out, palpation of the median lobe on a sound introduced into the urethra is of assistance. It has been suggested that enough of the prostate for microscopic diagnosis can be obtained by the introduction of a trocar through the perineum into the suspected prostate. In one of my cases part of a carcinomatous lobe was removed and the diagnosis made from this. Such a procedure, however, is not ideal, as it might make the carcinoma grow more rapidly. If one treats cases which one is sure are carcinomas of the prostate, but in which a microscopic diagnosis has not been made, and makes such patients temporarily or permanently better, one will, of course, run a risk of dealing with cases which were not carcinomatous.

Treatment.—The operation after Legueu, Young and others apparently succeeds in curing the disease in a certain number of cases. The operative mortality is probably between 10 and 20 per cent., and the cured cases very few. Aside from the mortality, one objection to the operation is the fact that many patients are left with partial or complete incontinence. Because the results of an operation are unsatisfactory, radium has been employed in attempts to destroy the growth. Irradiation has been both rectal and urethral. Pasteur and Degras[1] report a number of cases in which the radium in the prostatic urethra or bladder gave a marked diminution of the size of the prostate and a decided improvement in symptoms. One patient three and one-half years after treatment by radium was in excellent health, with a small regular movable prostate and clear urine. This carcinoma had extended through into the bladder. Geraghty, applying radium by way of the urethra, has been able to relieve the symptoms of frequent urination, tenesmus, etc., in a number of cases, but has been unable to cause any appreciable diminution in the size of the carcinoma.

Technic of Application of Radium.—Because the carcinoma starts in the interior of the prostate gland, and radium by urethra or rectum often causes intense irritation, I have applied the radium differently. A needle 4½ inches long and about 18 gage has been used. From 50 to 100 millicuries of radium have been placed in the end of this needle for a distance varying between ¾ inch to 1½ inches according to the indications of the individual case. The patient is placed in a lithotomy position, a finger introduced into the rectum and the perineum between the urethra and rectum is anesthetized with novocain (1 per cent.). I have frequently inserted the needle without anesthetization, causing very little pain. The radium needle is then plunged into the perineum between the urethra and rectum, and, guided by the rectal finger, the end of the needle is passed into the middle of one or the other of the carcinomatous lobes.[2] After the needle is introduced, the patient frequently does not feel its presence. The needle is left in place from four to six hours. If one wishes to irradiate the other lobe, the needle is pulled out of the first lobe and introduced into the second and left there the proper time. The ease of this procedure is obvious. I was nearly dissuaded from using this method by reports of necrosis following the use of unscreened radium. I have now used the needles in the prostate fifteen times, and to date have had no radium sloughs. These

1. Pasteur and Degras: Radium in Cancer of the Prostate, Jour. d'urol., September, 1913.
2. The needle in the prostate also serves to exclude prostatic stone, the one condition hard to differentiate from carcinoma.

patients are apt to have burning and pain beginning the week after the radium is used and lasting for from one to two weeks. During this time the prostate swells, and the maximum effect of the radium on the growth is not to be looked for until two or three months. Some patients, notably those with the carcinoma extending into the vesicles, have a great deal of pain. Neither the pain, however, nor the urinary disturbance are as great as when the radium is used in the bladder. And curiously enough, radium in the urethra seems to cause or increase an already present residual urine; while this needle method, as far as I have observed, does not. There is a certain class of borderland cases in which the carcinoma has broken through into the bladder neck and in which it is a question whether to use the prostate needles or the screened radium in the bladder neck. I think these cases should be started with prostate needles, as the reaction is often little or nothing.

REPORT OF CASES

Extent of Lesion.—Five patients have been treated by the needle method.[3] In but one of these cases was a specimen obtained for pathologic examination. In this case the bladder was opened suprapubically, and one lobe of the prostate removed and found to be carcinomatous. In two of the cases there was very extensive carcinoma of the prostate with involvement of the vesicles. In another case there was but little involvement of the vesicles, but a large hard irregular unmistakable carcinomatous prostate. In the fifth case there was a doubt of the diagnosis. Dr. Keyes and I thought it to be carcinoma. Another surgeon said that it was "very suspicious," still another "suspicious," and two refused to give an opinion.

Number of Treatments.—In one case I inserted the needle four different times; in the four other cases I used the needle only once. The largest dose of radium that I have used in a needle is 102 millicuries for four and one-half hours in one lobe, and the same needle was changed to the other lobe, and remained there four hours. I have never seen a slough from the use of the needle, although I prefer to begin with small doses at first, from 50 to 75 millicuries for six hours.

Results of Treatment.—One patient died two months after the irradiation. He had an extensive carcinoma of the prostate and vesicles. The immediate cause of his death I do not know. One of the patients has been too recently irradiated to determine the result. The other three patients have all improved symptomatically.

One who was irradiated in December, 1915, directly after suprapubic exploration (by another surgeon) I have been unable to reach to examine. I have heard indirectly, however, that he is up and doing a good day's work. This is all I know about him.

The second, a possible borderland case, was treated Feb. 8, 1916. He had just before the irradiation an acute retention of urine. For six months prior to this he had a night urinary frequency (from two to four times). The radium needle caused absolutely no pain and no urinary disturbance. When seen, May 3, 1916, his prostate was considerably reduced in size. He had gained a few pounds in weight, he had no night frequency and was doing a full day's work. During this time he had no urethral instrumentation.

The last patient is decidedly better symptomatically, and his prostate is so much reduced that if I did not know his history I would have much difficulty in convincing myself that he had any carcinoma. He was first seen in November, 1915. He gave a history of night urinary frequency of from six to eight times for four months, and some pain running down his right thigh for five years. There had been no erections for one and one-half years. He weighed 116 pounds. He had lost about twenty pounds. Both lobes of the prostate were large, irregular, stony, hard, with slight extension up toward the vesicles. The prostate was so hard that the possibility of prostatic stones was thought of. A roentgenogram excluded this. He had no residual urine. Radium was used in November, 1915. A month later he reported that he had a number of vigorous erections which "gave him hope." The prostate at that time was at a maximum swelling. January 14, the weight was 126. The prostate was much reduced. Dr. Keyes said: "It is more the slight irregularity of the prostate than anything else that suggests carcinoma."

I again irradiated the patient, January 18. February 7, he was not up at all at night. He weighed 132¾ pounds. February 22, I irradiated again. April 4, I irradiated once again. When last seen, April 21, his frequency had gone from none at all at night to twice at night because of the radium of April 4. He has a small hard lump in the left lobe and a narrow, hard ridge along the outer margin of the right lobe. The prostate is very flat. This man has gained about 16 pounds in weight. From getting up at night six or eight times, he has had a long period just before the last radium burn of getting up not at all at night. His prostate is markedly reduced in size, but I believe still has carcinoma in it. For six months his carcinoma and the symptoms caused by it have markedly regressed.

SUMMARY

By means of radium we have caused the rapid and complete disappearance of two bladder carcinomas out of nine treated. These cases were carcinomatous by cystoscopic appearance and microscopic examination. Time only will tell whether these patients are cured.

In one case of prostatic carcinoma, treated for six months, the carcinoma and the symptoms have markedly regressed. In another case, treated three months (possibly borderland) the symptoms have improved. Of three other patients treated, one is dead, one has only recently been treated, and one is doing a full day's work but could not be reached for examination.

It has been possible to carry out this work because of the cooperation of three men: Dr. Janeway has given valuable advice as the radium expert of the hospital; Dr. Keyes has very generously contributed advice, corroborating examinations, and material; while Dr. Ewing has suggested ways and means and made all the pathologic examinations. My grateful thanks are due to these three.

109 East Thirty-Fourth Street.

3. A sixth patient was treated by radium inserted in the rectum. In this case there was considerable irritability and urinary retention, and the patient finally died uremic. I have not included him in the foregoing series.

Separation of Buttocks.—Occasions arise in which the examination of the anus or the contiguous skin is necessary, or some minor operation of the area is indicated, but when, unfortunately, the patient objects to a third person (assistant). At times, as in private homes, assistance on similar occasions is lacking. Being confronted with such a case (the removal of a small external hemorrhoid), I was much annoyed by the falling together of large, soft, flabby buttocks. This disadvantage was quickly overcome by the simple expedient of applying a 2 inch strip of surgical adhesive plaster to each buttock and by a bandage which united the ends in front, pulling the buttocks apart. The adhesive strips are applied about an inch from the anus, transversely to the axis of the body and closely attached to the skin for, say, 6 inches. It is a great relief to the operator to witness how easily the buttocks are separated by this means and what an excellent field this simple method provides. It is painless, quick, cheap, efficient and, best of all, may be applied at any time or place when a roll of adhesive is available.—JOHN C. SILLIMAN, M.D., Palo Alto, Calif.

New Instruments and Suggestions

RED MERCURIC IODID, A PHARMACEUTICALLY "SOLUBLE," THERAPEUTICALLY INSOLUBLE, SALT

G. Frank Lydston, M.D., Chicago

Considerable interest recently has been shown by physicians in the use of oily "solutions" of red mercuric iodid (mercury biniodid) by intramuscular injections. Properly prepared, a solution of the biniodid is an elegant and eligible method for intramuscular administration; but it is well to understand that in the last analysis the biniodid is no more soluble than the salicylate or the mild chlorid. I have proved by experiment that the biniodid immediately is precipitated by fresh blood serum. It naturally follows, therefore, that the drug is released from solution as soon as injected into the tissues and deposited as an "insoluble" salt. I later injected a dose of 1 grain into the abdominal muscles of a rabbit. On dissection, about six minutes later, the mercurial salt was found free in the tissues. As to its subsequent "solution" and absorption from the site of injection, I am not as yet in a position to state, from experiment. So far as therapeutic effects are concerned, the evidence seems to show that such solution and absorption apparently occur. The foregoing is worthy of note in connection with the intravenous use of "solutions" containing red mercuric iodid. I will state, however, that I frequently have administered intravenously red mercuric iodid dissolved in potassium iodid, thus far with no harmful effects. As to the efficacy of intramuscular injections of the biniodid, I am not as yet quite satisfied. I am using it, however, quite extensively, in the hope that it may prove more efficacious than some of the other insoluble salts.

25 East Washington Street.

A MODIFIED GRAM STAIN FOR DIPHTHERIA

Albert Albrecht
Hospital Steward, United States Navy

In Stitt's "Practical Bacteriology," second edition, is the formula for "an easily made and quite permanent gentian violet stain":

Saturated alcoholic solution of gentian violet.....25 c.c.
Five per cent. dilution of liquor formaldehydi.....75 c.c.

This stain is unreliable as a Gram stain, and was omitted from the third edition of the book.

During the past two years at the United States Naval Hospital, Naval Training Station, Great Lakes, Ill., over 3,000 cultures were made from the throats of recruits as they came to the station, to determine whether or not they were diphtheria carriers. Two and five-tenths per cent. were positive.

There were also two small epidemics of diphtheria. In all, more than 4,000 cultures were made on Loeffler's serum and stained by the following method:

1. Stain with the foregoing gentian violet stain for two minutes.

2. Flood preparation with one-half strength Gram's iodin solution for one and a half minutes.

3. Immerse slide seven or eight times in a jar of 95 per cent. alcohol.

4. Counterstain with saturated aqueous solution of Bismarck brown for four minutes.

5. Wash in water and examine.

The Klebs-Loeffler bacillus, when stained according to this method, appears as a brown rod, and the metachromatic granules are stained a deep violet. In other words, the bipolar granules alone remain gram-positive.

A single diphtheria bacillus can quickly be seen in a field with numerous other kinds of organisms.

The picture is that which we are supposed to get with Neisser's stain, but the organisms are stained more deeply, and the results are more constant.

U. S. S. *Illinois*, in care of Postmaster, New York.

Therapeutics

MOUTH INFECTIONS

(*Continued from page 1371*)

PYORRHEA ALVEOLARIS

The occurrence of pyorrhea alveolaris varies among different classes of people. At present the care of the teeth has an important place in the daily routine of the better educated people, and although cases do exist among them, they are less frequent than among those who are strangers to the toothbrush and to mouth cleanliness. Bass and Johns[9] state that they found pyorrhea in 95 per cent. of the cases examined by them. It is possible that their cases were collated from the poorer classes of people and from those suffering from tooth affections.

By pyorrhea alveolaris is meant a condition in which pus to a greater or less degree is present at the gingival margins affecting the peridental membrane and ultimately exposing the bone. As a result, pus pockets, from which pus escapes freely or may be easily expressed, occur. Predisposing factors are bad crowns, careless fillings, improper bridging, and, in all classes, neglect of the care of the teeth. Bacteria find a lodging place in the tartar deposited on the teeth or under a cap, and set up an inflammation. The gums become painful and tender, and there is a tendency to bleed easily from the slightest touch. Gradually the gums recede until pockets form between the teeth and gums in which the bacteria grow and thrive unchecked. Unless the disease is stopped, the teeth lose their firm support in the alveolar processes and become loose.

Pyorrhea alveolaris seems directly responsible for a large number of body ailments, produced by the entry into the lymph or blood stream of the bacteria from the infected gums. Their toxins also produce systemic disturbances. It is also true that general systemic infections, by lowering the resistance of the gums, may be the starting point of pyorrhea alveolaris, which will continue after the general infection has been cured. Removal of the pus may cure the associated condition. It is also probable that the pyorrhea, through its micro-organisms and their toxins, reduces the physical resistance of the body to such an extent that it is readily susceptible to other invasions.

When, by removal of the pyorrhea, the body resistance is restored to normal, the systemic condition is cured through the action of the antibodies in the blood and the cells. Hartzell,[10] in an examination of the teeth in 1,020 cases of mouth infections, in all of which there was pyorrhea, found eighty with disturbances of the alimentary tract, and all with evident signs of malnutrition. Other persons were suffering from migraine, and still others were neurasthenic. There were cases of arthritis and endocarditis. Anemia and even pernicious anemia were found associated with pyorrhea. Craig[11] found a number of nervous disorders due to peridental infection. The common symptom, paresthesia of the fingers and toes, "pins and needles," he states, may be due to pyorrhea, as may otalgia, tic douloureux, and neuri-

9. Bass, C. C., and Johns, F. M.: Pyorrhea Dentalis and Alveolaris, The Journal A. M. A., Feb. 13, 1915, p. 553.
10. Hartzell, T. B.: The Responsibility of the Dentist and Physician in Regard to Mouth Infections and Their Relation to Constitutional Effects, The Journal A. M. A., Oct. 4, 1913, p. 1270.
11. Craig, C. B.: Peridental Infection as a Causative Factor in Nervous Diseases, The Journal A. M. A., Dec. 5, 1914, p. 2027.

tis of the sciatic nerve and brachial plexus. These conditions disappear with the removal of the pyorrhea.

There has been considerable difference of opinion as to the causative micro-organism producing pyorrhea alveolaris. Fully 150 different organisms have been isolated from the gums and described. It has been assumed by many using vaccines that the real offender was a streptococcus, and that if such were obtained from the deep recesses of the pus pocket, it could be used for the manufacture of an autogenous vaccine in the treatment of the condition. Hartzell and Henrici[12] found streptococci in cases of pyorrhea alveolaris and dental abscess associated with arthritis deformans, acute articular rheumatism, endocarditis, pernicious anemia, gastric ulcer, and acute iritis. Vaccines were used with varying results, but these authors cannot positively state that vaccines have a definite value in these cases. They also found other organisms present with the streptococci.

Barrett[13] and later Bass and Johns[9] recognized the ameba or endameba as the specific micro-organism of pyorrhea alveolaris. Barrett,[14] however, also considered that pathogenic bacteria played an important part in the condition. There seems to be but little doubt that *Endameba buccalis* is a common invader of the tissues within the mouth, particularly the gums. This has been known for many years, the special strain of endameba around the gums having been called the *Endameba gingivitis* by Gros, in 1849. A contrary view of the action of the endameba has been held by Chivero,[15] of the University of Rome, who, after a careful study of the mouth protozoa, stated that he had found the *Endameba buccalis* in the pus in all cases of pyorrhea, but that he thought them beneficial, claiming that they fed on pathogenic bacteria.

Perhaps the best proof of the relation of the endameba to pyorrhea alveolaris is furnished by the action of ipecac or emetin, a specific amebicide, on the endameba. Such treatment often results in a disappearance of the pyorrhea alveolaris. Not only has the pus disappeared, but there has also been a subsidence and improvement, often with cure, of the complications produced by the pyorrhea. Emetin treatment, however, without additional measures, such as removing the offending bridge, crown or tooth which may have caused the pus pocket, will not suffice in effecting a cure, as pockets still persist and invite further accumulation of tartar and pus.

Treatment of pyorrhea alveolaris may be applied locally, or it may be given hypodermically. Bass and Johns[9] give doses of 0.5 gm. emetin hydrochlorid hypodermically each day for from three to six days, the duration depending on the case, and also on the stage of the disease. They found that the endamebas disappeared from all lesions in 90 per cent. of their cases after a one to three day treatment, and in 99 per cent. of the cases after at most six days' treatment. With the disappearance of the endameba, they also found that the pain and soreness disappeared, and that there was no further tendency of the gums to bleed. They found no indication in any of their cases for the space between the root and the alveolar process to fill up with periosteum or other tissue. On this account a pocket was left that provided a place for further pyorrhea. This would mean constant injection of emetin, which would, for various reasons, be impracticable. On this account there is offered good opportunity for recurrences. Reinfection may be prevented by daily local application of fluidextract of ipecac to the gums. It has been found that this, even when diluted 200,000 times, will kill the endameba. The fluidextract may be diluted ten times with alcohol and applied by means of a toothbrush, care being taken to force the ipecac between the teeth. Even with this prophylaxis, relapses have occurred, and on this account it is suggested that courses of injections of emetin be repeated every three or four weeks.

With the emetin treatment there is also essential the treatment of the teeth, such as removing the tartar, cleaning, and removing any dead tissue from the pus pockets. With such treatment the pus pockets should also be irrigated with a weak solution of the fluidextract of ipecac.

Williams and associates,[16] studying amebic infections in the mouths of children and the subsequent condition in some of these following treatment by ordinary cleansing methods and in others with mouth washes containing emetin, found in the first group that the number of mouths showing ameba was reduced one-half, and with emetin was reduced to 10 per cent. They used a 1:200 emetin solution which, as the treatment continued, was reduced to a 1:400 solution.

There have been reported serious results from the emetin injections. Levy and Rowntree[17] report two cases of poisoning from emetin, in one of which the patient died. In both cases there was diarrhea, and in the fatal case signs of kidney involvement.

The question of the constant presence of the endameba in some mouths brings up the question of carriers. It is quite evident that inasmuch as the endameba is a common invader of the mouth, the person with pyorrhea alveolaris must be a carrier, and hence capable of infecting those who come in contact with his mouth secretions. The disease can doubtless be transmitted in the same ways as other mouth infections, such as by the use of common drinking and eating utensils, by droplets in speaking and coughing, and by kissing.

Some of the solutions used in the mouth or injected into the gums have contained hydrochloric acid, and it has been shown that some acid fruits are more cleansing for the teeth and gums than are alkaline washes.[18] Tweddell[19] has found that the internal administration of dilute sulphuric acid in doses of from 30 to 60 drops, taken with a large amount of water, and administered three or four times a day, is of value not only in fighting furunculosis, but also in combating pyorrhea alveolaris.

Whatever the local or systemic treatment of the *Endameba buccalis* or of the associated pus germs, even when autogenous vaccines are made and used and act successfully, the dental management of the retracted gums and eroded and diseased teeth is of primary importance, and treatment will fail unless the dental care of the jaws is successful.

12. Hartzell, T. B., and Henrici, A. T.: A Study of Streptococci from Pyorrhea Alveolaris and from Apical Abscesses, THE JOURNAL A. M. A., March 27, 1915, p. 1055.
13. Barrett, M. F.: Dental Cosmos, 1914, lvi, 948.
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15. Chivero, Angelo: Dental Rev., December, 1914, p. 1133.
16. Williams, Anna W.; von Shelly, Anna I.; Rosenberg, Caroline, and Mann, Alice G.: Significance and Prevention of Amebic Infections in the Mouths of Children, THE JOURNAL A. M. A., Dec. 11, 1915, p. 2070.
17. Levy, R. L., and Rowntree, L. G.: On the Toxicity of Various Commercial Preparations of Emetin Hydrochlorid, Arch. Int. Med., March, 1916, p. 420.
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THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, NOVEMBER 11, 1916

NEWER ASPECTS OF BACTERIAL METABOLISM

In the early era of modern bacteriology, with its discoveries of new micro-organisms and important etiologic consequences following each other in rapid succession, the attention of both investigators and their scientific audiences was focused almost exclusively on the morphologic and cultural characters of the minute living forms which were being recognized for the first time. The isolation of some new group of bacteria led at once to the question of its possible pathogenicity and of the precise sort of characters which would enable one to detect and grow the form. It was only in later years that consideration was given to the life of the bacteria themselves, to microbiology as a story of the metabolism and growth of these lower organisms apart from their possible relations to disease or other phenomena in the world in which they develop. Curiosity early arose, of course, as to the way in which bacteria exerted their functions; how they produced decomposition in organic matter; how they "secreted" poisons of almost magical potency; how they managed to develop under conditions in which other forms of life speedily deteriorated or died, and how they manifested some of the unique properties which have given them popular prominence in a comparatively short time.

The classic discovery by Eduard Buchner of zymase, the enzyme of yeast responsible for the reaction of fermentation, served as a stimulus for the investigation of the relation of enzymes to bacterial life. Incidentally, the problems of bacterial metabolism forced themselves into the foreground. It became more evident than ever before that these lowest forms, the bacteria, likewise effect their changes in the pabulum on which they act through the elaboration of bacterial enzymes. Decomposition, whether of proteins or carbohydrates or fats, assumed a new significance not unlike that of the better recognized enzymatic digestive changes in the nutrition of higher forms.

It was an unexpected turn when the English bacteriologist Bainbridge[1] announced, in 1911, that certain aerobic and facultative anaerobic bacteria of the gelatin-liquefying and nonliquefying types are of themselves unable to initiate decomposition of purified native proteins. These significant facts have been corroborated in this country by Sperry and Rettger[2] at Yale University, who have further shown that certain putrefactive anaerobes like *Bacillus putrificus* and *B. oedematis* are likewise devoid of this property. The American investigators further showed that the vegetable protein edestin, purified by crystallization, like egg albumin and serum albumin, does not undergo disintegration by direct bacterial action.

These unexpected observations[3] naturally have led to the assumption that protein nitrogen cannot be utilized by bacteria unless it is first made available in simpler combinations for cell nutrition through the action of proteolytic enzymes, or some other cleavage agencies. The resistance to decomposition is not necessarily due to some factor attributable to the "native" or unaltered condition of the purified isolated proteins heretofore studied in relation to bacterial metabolism; for Rettger, Berman and Sturges[4] have lately found that purified egg albumin, coagulated in the process of sterilization by heat, is still resistant to the bacteria mentioned, when it forms the sole source of nitrogen in the medium. Even more surprising, perhaps, is their observation that the inability of bacteria to attack and bring about the decomposition of proteins without the aid of enzymes or other proteolytic agents applies not only to the more complex proteins like egg albumin, but in all probability to proteoses and peptones as well.

This statement will promptly meet the reply that commercial "peptones" and proteose preparations are the conventional sources of the nutrient mediums for bacteria in every laboratory throughout the world. How is this seeming contradiction to be explained? What are the important sources of nitrogen available for bacterial metabolism without the aid of enzymes? It is now known that the amino acids, recognized as the primary units in nitrogenous metabolism in the higher animals, are readily utilized by bacteria. According to Rettger[4] and his collaborators, it begins to appear probable that so-called "peptone" mediums largely owe their value as culture mediums to the amino acids present and perhaps other nitrogenous substances which readily give up their nitrogen as the result of direct bacterial action, and unless bacteria are present which elaborate proteolytic enzymes, little if any of the proteoses and peptone in the medium is utilized. It may accordingly become necessary to adopt the view that the bacterial cell cannot utilize any

1. Bainbridge, F. A.: The Action of Certain Bacteria on Proteins, Jour. Hyg., 1911, xi, 341.

2. Sperry, J. A., and Rettger, L. F.: The Behavior of Certain Bacteria Toward Purified Animal and Vegetable Proteins, Jour. Biol. Chem., 1913, xx, 445.

3. The Resistance of Pure Proteins to Bacterial Decomposition, editorial, The Journal A. M. A., July 17, 1916, p. 257.

4. Rettger, L. F.; Berman, N., and Sturges, W. T.: Further Studies on Bacterial Nutrition: The Utilization of Proteid and Non-Proteid Nitrogen, Jour. Bacteriol., 1916, i, 15.

protein until after it has been disintegrated by some other agent and the nitrogenous portion converted into a simpler form.

If this view becomes tenable, it will be necessary, as Rettger maintains, to alter materially the current conception of the value of "peptone" and other soluble as well as insoluble proteins as culture mediums, especially so far as certain groups of tested bacteria are concerned. These newer conceptions evidently bring the metabolism and constructive nutrition of the bacteria into a degree of harmony with that of the higher animals. In the latter, complex foodstuffs must be prepared for the cells through the disintegrative help of enzymes either within or without the organism. No cell can directly assimilate and utilize undigested foreign food material. The same plan may perhaps apply to the bacterial cell, Rettger ventures, as well as in the field of animal cell nutrition.

IMMATURE VEAL AND HARD PALATES

Tradition and custom play a significant part in the selection of the dietary. Frequently these factors are the logical outcome of local economic conditions or geographic necessity. One would scarcely expect potatoes, for example, to be a prominent component of the ration in a region in which they are not readily available, owing to agricultural difficulties. Likewise the sort of cereal which is most generally consumed in one region or another has usually depended on the specific produce of the locality concerned. Latterly the ease of communication and transportation has made a much larger range of edible products available in all areas to which civilization reaches. Even perishable materials, like fresh fruits and meats, are carried literally to the uttermost ends of the earth for distribution. More stable products are correspondingly easier of transmission to open markets, according to the economic laws of supply and demand.

Sometimes an established prejudice in matters of diet puts an almost impenetrable barrier against the introduction of innovations in respect to diet. We have referred in the past to an instance of this which seems to exist regarding the use of very young veal, sometimes designated as bob veal.[1] The sale of calves less than from 3 to 6 weeks old for food is prohibited by federal and state laws. Is the current attitude against the young veal logical? Let us consider the argument of government experts in the field of nutrition. That the common opinion that veal is less wholesome than beef, they tell us,[2] and young veal less so than mature veal is not a consistent prejudice against young flesh foods is shown by the common and apparently growing taste which prefers squab to pigeon, ranks broilers as superior to fowls, considers sucking pig a great delicacy, and regards hothouse lamb—that is, lamb less than 3 months old and rapidly grown and fattened—as being as much superior to older lamb as lamb is to mutton.

What are the alleged justifications for the traditional prejudice against young veal? By some it has been claimed to be rather indigestible and thus made responsible for gastro-intestinal disturbances. Others have ascribed to it a positive toxicity of some sort, postulating the existence of some harmful compound which disappears with the age of the animal. Fish[3] of Cornell University hurled defiance at inherited belief a few years ago in his championship of young veal as a harmless food. No toxicity whatever could be established in his experiments on many human subjects. More recently Berg[4] of the Bureau of Animal Industry has helped to dispel mistaken beliefs by showing that there are no physiologically significant differences in the chemical composition of beef and immature veal. In a large number of artificial digestion experiments he found that the young veal was as quickly digested as beef; and feeding experiments with animals supported the contention of the harmlessness as well as the nutrient qualities of meat from very young calves.

Even more convincing must be the elaborate investigation of the coefficient of digestibility of very young veal conducted by Langworthy and Holmes[2] at the office of Home Economics in the State Relation Service, Washington. The value of their studies will be greatly enhanced in the eyes of many by the fact that the experiments were conducted on the human subject in normal health. The outcome was definite in showing that the digestibility of the protein of bob veal is the same as that found for market veal—namely, 93 per cent., in round numbers. The subjects of the dietary and digestion experiments experienced no physiologic disturbances during the experimental period or afterward. The tests showed that such veal can be prepared for the table in palatable ways, and that so far as could be judged, it was not unwholesome when eaten in quantity. In the digestion experiments the average weight of protein supplied by the meat exceeded that generally furnished by the meat portion of the ordinary diet, indicating that very young or bob veal was not distasteful. In the light of known facts one may reasonably conclude, therefore, that the general opinion that young veal is a common cause of digestive disturbance or fails to digest as thoroughly as similar foods is not justified.

Perhaps a better understanding of the truth about young veal will ultimately serve a manifold benefit. In grazing areas in which the cheapness of food makes

1. Is "Bob Veal" Toxic? editorial, THE JOURNAL A. M. A., March 15, 1913, p. 834; "Bob Veal," June 7, 1913, p. 1795.
2. Langworthy, C. F., and Holmes, A. D.: Digestibility of Very Young Veal, Jour. Agric. Res., 1916, vi, 577.
3. Fish, P. A.: Preliminary Observations on Bob Veal, Rep. New York State Vet. Col., 1909-1910, p. 130; Further Observations on Bob Veal, ibid., 1910-1911, p. 138; The Digestibility and Decomposability of Bob Veal, ibid., 1912-1913, p. 51.
4. Berg, W. N.: Biochemical Comparisons Between Mature Beef and Immature Veal, Jour. Agric. Research, 1916, v, 667. Immature Veal as Food, editorial, THE JOURNAL A. M. A., March 11, 1916, p. 820.

it possible to rear cattle at least to early maturity, there is a natural tendency to do so. In regions in which the dairy industry is highly developed, milk is such an important product that it is not thought profitable to rear calves beyond the period when the mother's milk becomes salable. Under present traditions the lack of a market for very young veal results in the slaughter of the calves soon after birth without any attempt to feed them until the lawful marketable age. Changing economic conditions, especially the growing scarcity of meat, may help to overcome the existing prejudices and save what is now a considerable loss in the food industry.

Reference to economic necessity may serve to call attention to another neglected animal product, the so-called "hard palates" which are taken from the roof of the mouth of beef cattle. These contain very little muscular tissue such as is characteristic of meats in general, and they are of somewhat unattractive appearance. Aside from a small layer of stratified epithelium, the bulk of the tissue consists of connective tissue together with a small admixture of involuntary muscle. The government experts[5] have found that these hard palates can be transformed into a palatable product by suitable culinary procedures. According to the report just cited, the protein of the hard palates appears to be almost as thoroughly assimilated, if it has previously been thoroughly cooked, as that of the common cuts of meat. Perhaps this newly suggested food product will make a greater appeal if conditions arise in which frugality and conservation of meat resources become more necessary than at present.

INTRAVENOUS THERAPY

The intravenous administration of drugs is a new departure in therapy, but one which is rapidly increasing in use. Among its reputed advantages are that it is the quickest means of obtaining the effects of a drug, the effects are obtained with a certainty not obtained by other methods, and they are so marked that they cannot fail to impress the observer. These advantages in many cases are apparent rather than real; but even were they real advantages, they should not blind us to the various and serious dangers which this method involves. The technic, although not difficult, must be thoroughly mastered, or undue pain, infection, air embolism, or even death may result. Such accidents, however, are ordinarily easily avoided, and should be considered quite inexcusable. More serious is the fact that the drugs given intravenously reach the system, and especially the heart, in a different manner and concentration from that to which physicians are accustomed with ordinary methods of administration. Pharmacologists have long practiced intravenous administration, when studying acute effects of drugs, and they have observed that frequently the immediate result of such injections is a prompt fall of blood pressure, not obtained when the same drugs are given by mouth or even hypodermically. This fall in blood pressure is commonly attributed to irritation of the endocardium. It is usually of short duration, but is certainly undesirable and sometimes may have serious results.

It has also been observed that several drugs, for instance, quinin and potassium, depress the cardiac muscle when given intravenously much more than when given in other ways. Furthermore, any substance which tends to precipitate proteins must be injected slowly and with extreme caution, or it will produce intravascular clotting and sudden death. Deaths have resulted not only from a lack of knowledge of the technic of intravenous therapy, but also from a lack of knowledge of drugs which may be so administered. Sudden death has been reported following the injection of an iron preparation containing peptone, and also following intravenous injection of ether. Intravenous injections, while sometimes superior to the slower methods, are distinctly inferior when a continuous rather than a sudden action is desired. Drugs leave the blood system with great rapidity, and therefore their action on the circulation will cease promptly unless they are continuously supplied. It would be undesirable to inject intravenously such drugs as iodids, nitrites, iron or salicylates.

With these dangers and disadvantages in mind, it seems unwise to resort to promiscuous intravenous medication until the effects of this method have been studied in detail for the drugs employed, and unless there are distinct advantages to be secured. This is the case when an immediate action is necessary in emergencies, as in the use of strophanthin for cardiac collapse, quinin in pernicious malaria, etc., or if the drug would be destroyed in the stomach or tissues, as in the case of salvarsan, or where the drug is not adequately absorbed by any other channel, as in the case of epinephrin.

Intravenous therapy will be most securely advanced if its employment is restricted to such well defined fields. These fields can be satisfactorily determined only by a scientific pharmacologic study of the action of these drugs when so administered in animals, as well as in man, under conditions in which the results are carefully controlled. The intravenous method is an impressive one, approaching in preparation almost to that which goes with a surgical operation. The patient is usually interested and impressed by this new, and to him, mysterious method. There is a psychic element in his reaction to the injection which is not a factor in his reaction to the same drug when given by mouth. The intravenous injection of a complex mixture would appear to be particularly reprehensible. Little is known, as has been stated, of the results to

5. Langworthy, C. F., and Holmes, A. D.: Digestibility of Hard Palates of Cattle, Jour. Agric. Research, 1916, vi, 641.

be expected from intravenous therapy, even with simple substances. The use of complex mixtures will without doubt react against the proper use of the method.

POSSIBLE DANGERS OF THE BUBBLE FOUNTAIN

The propaganda in the interest of public health has succeeded in introducing numerous innovations into our daily life. Most of these have improved sanitary conditions; some have helped to eradicate disease and to promote hygienic efficiency. The dangers to health which lurk in the common use of articles that find an application in the everyday life of man with respect to his person have become more clearly recognized with the development of bacteriology. Dentists' and barbers' utensils, the common towel, and the public drinking cup are believed to harbor a menace because of the possibility of transmitting infection from person to person through the successive use of the same device without special purification or sterilization for each application.

Laws have been framed to prohibit the use of the common drinking cup and are being widely enforced in this country. As a result, the "individual" or single service cup, usually made of paper, has come into use; and where suitable water supply is available, the bubble fountain has been generally installed. In the latter device it has seemed as if the application of sanitary science had almost reached hygienic perfection; for what could be more obvious than the freedom of the ever changing bubbling stream of pure water from contamination through the evanescent contact with the mouth?

The circumstance of an epidemic of streptococcus tonsillitis two years ago in one of the dormitories of the University of Wisconsin unexpectedly directed suspicion to the bubble fountains in the building. The water pressure in them was so low that it was scarcely possible to drink from the bubbler without touching the metal portions with the lips. An examination of the fountains showed them to be heavily contaminated with streptococci. Positive results were obtained from the surface of the fountain, from the inside and from the water discharged, but the city water supply by which they were operated gave no evidence of these organisms. These facts led to an extensive bacteriologic investigation of the hygiene of the bubble fountain in general by Pettibone, Bogart and Clark[1] of the University of Wisconsin Laboratory of Medical Bacteriology. From this it appears that the bubble fountains may become a factor in transmitting disease.

The facts of the Wisconsin investigation are surprising as well as unexpected. A survey of all fountains of the university showed the presence of streptococci in over 50 per cent. of the total number. These bacteria varied in abundance from a few chains to an almost pure culture obtained by swabbings from fountains in the epidemic-ridden dormitory. In an experimental bubble fountain, *Bacillus prodigiosus* when introduced either by means of a pipet or by the moistened lips remained in the water from two to 135 minutes, depending partly on the height of the "bubble."

The explanation of this finding seems to be clear. Most of the organisms are flushed away in the water stream; but some remain dancing in the column much as a ball dances on the garden fountain, even though the bubble be increased to the impracticable height of 4 inches. To avoid this difficulty, always present in the vertical column of spouting water, a simple fountain with a tube at an angle of 50 degrees from the vertical was constructed. *B. prodigiosus* was never found in the culture plates from this type of fountain, even when samples were taken immediately after the intentional introduction of the organisms.

Danger disguised in the cloak of safety is a menace of the most potent sort, particularly when it receives the approbation of health authorities in the way that the bubble fountain has shared it. The Wisconsin investigators believe that a jet of water from a tube erected at an angle of 15 degrees or more from the vertical and with an adequate collar guard to prevent possible contact with the orifice is adequate to prevent micro-organisms from "dancing" on the column of water. The construction of a safe bubble fountain is thus made practicable, and the problem of furnishing water uncontaminated by human lips even to a constant succession of thirsty persons is apparently solved anew.

1. Pettibone, Dorothy F.; Bogart, F. B., and Clark, P. F.: The Bacteriology of the Bubble Fountain, Jour. Bacteriol., 1916, i, 471.

Current Comment

NATIONAL RESEARCH COUNCIL

The National Research Council, organized by the National Academy of Sciences at the request of the president of the United States, has elected Dr. George E. Hale, the director of the Mount Wilson Solar Observatory, as chairman. This council has been created to bring into cooperation existing governmental, educational, industrial and other research organizations in order to encourage the investigation of national problems, the increased use of scientific research in the development of American industries, the employment of scientific methods in strengthening the national defense, and such other applications of science as will promote national security and welfare. Under such a plan, the possibilities of the council are practically unlimited. It has been decided that the efforts of the council shall be uniformly directed toward the encouragement of individual initiative in research work, and that cooperation and organization shall not involve restrictions or limitations of any kind on research workers. Committees on research for edu-

cational institutions, promotion of industrial research and national census of research have been appointed. Joint committees on various branches of science are to be formed to cooperate with corresponding national scientific societies. Dr. William H. Welch, Dr. W. W. Keen, Surgeon-General W. C. Gorgas, Dr. Victor C. Vaughan and Dr. Simon Flexner comprise the medical members of this important board.

THE "UNITED DOCTORS"—TYPICAL QUACKS

"The professionalism of the case taker and fee getter is of worth only insofar as it tends to make the desired impression upon the patient." The statement just quoted is credited, by Dr. Burton E. Manchester, to another physician previously hired by him to play the part of an itinerant "specialist." Here is expressed, in few words, the letter and the spirit of the principles that govern the advertising quack. Manchester, as will be seen by those who read the Propaganda Department this week, was the head of an itinerant quack organization styled the "United Doctors." He hired professional renegades to go from town to town as "specialists." Their coming was heralded in the newspapers by advertisements placed by Manchester through an advertising agency managed by Manchester; they dispensed pills and potions furnished by Manchester; they obtained and kept records of the financial condition of the victims and sent these reports to Manchester. After paying for the advertising, the medicaments, stationery, "follow-up letters," hotel and traveling expenses, 50 per cent.—or more—of what was left went to Manchester. Such was the scheme of the itinerant United Doctors. Because two of Manchester's hired men decided to place their own advertising (using the United Doctors' "copy"), furnish their own medicines and pay their own traveling and hotel expenses, keeping the entire amount garnered from the gullible, Manchester sought relief in the equity courts and urged that his two traitorous disciples be enjoined from continuing their nefarious trade. The result of this court action was to give the public a little light on the inner workings of the quack. And it is from one of the exhibits in this case, submitted by Manchester, that the quotation with which this comment opens is taken. "With me," still quoting from Manchester's exhibit, "as you probably know, the *modus operandi* is essentially commercial." It is. The man speaks not only for himself, but for the quack fraternity generally.

RECENT LEGISLATION FOR THE MEDICAL CORPS OF THE NAVY

A few weeks ago, attention was called to legislation which had been enacted for the medical department of the army. The last Congress also enacted legislation for the Medical Corps of the navy which should make most attractive a career in that branch of the public medical service. Like the Medical Corps of the army, this corps is placed on a percentage basis equal to 6.5 per cent. of the total personnel of the navy, immediately increasing the corps from 345 to over 680 medical officers; there are at present over 350 vacancies. The corps now has all ranks, from that of assistant surgeon with the rank of lieutenant junior grade (corresponding to rank and pay of a first lieutenant in the army) to the grade of medical director with the rank of rear admiral (corresponding in rank and pay to that of a major-general in the army). The establishment of the rank of rear admiral for medical officers, other than the officer temporarily holding the rank of surgeon-general, is a special achievement for the Medical Corps of the navy, as it establishes a dignity of high rank for a staff corps. The upper grades of the corps, that is to say, above the rank of lieutenant-commander (corresponding to the rank of major in the army), are distributed on a percentage basis—0.5 per cent. rear admirals, 4 per cent. captains (corresponding to the rank of colonel), and 8 per cent. commanders (corresponding to the rank of lieutenant-colonel). An officer in the lower grades of the Medical Corps is promoted through the various grades, with the officer of the line with whom or next after whom he takes precedence. Promotion is certain to be rapid for those entering the Medical Corps of the navy within the next three years.[1] Twenty large general hospitals with most complete and modern equipment are maintained in various parts of the world. The corps also maintains a quarterly journal which reflects the scientific character of the work accomplished. Candidates for this corps are examined in two stages. The first stage of the examination is in the fundamental medical branches. The candidate, if successful, is then appointed to the Medical Reserve Corps. After a course of study at the Naval Medical School at Washington, D. C., he comes up for final examination for commission. The candidate may appear at a date mutually convenient to him and the board, as the latter is constantly in session at the naval hospitals at Boston, New York, Philadelphia, Washington, Norfolk, Charleston, Chicago, San Francisco and Puget Sound. To the young medical man who feels that he owes a duty to his country, and who would fulfil that duty, at the same time securing practical development, broadening travel and experience in scientific research, the Medical Corps of the navy offers an exceptional opportunity.

1. The surgeon-general of the navy has issued a most interesting illustrated circular, which may be obtained from his office on application, describing the advantages of a career in the navy. This pamphlet will be of interest not only to prospective candidates, but also to the medical fraternity in general, as it contains much illuminating information concerning a special field for the medical profession and the character of its work, which takes its members to every part of the globe.

WHAT MALARIA COSTS THE SOUTH

Most people measure the importance of a thing largely by its cost. Human life and suffering have no definite cash value. Until recently sanitarians and health advocates endeavored to arouse the public by showing the number of lives which could be saved and the quantity of suffering which could be avoided by stamping out preventable disease. Their efforts appealed only to the minority. Profiting by this early experience, the present day sanitarian endeavors to get away from the sentimental and purely humanitarian aspect of disease and to reduce it to terms of dollars

and cents, appreciating that the commercial aspect will appeal to many persons not directly interested in health problems. An interesting effort in this direction is that by Van Dine,[1] of the United States Bureau of Entomology, who has made a careful study of conditions on a plantation in Madison Parish, La. Herrick in 1903 had suggested the enormous losses from this cause in the South, and Howard in 1909 estimated the annual loss in the United States from malaria to be not less than $100,000,000. These were necessarily estimates. Dr. Van Dine endeavors to work out the problem accurately on a small scale. The principal effects of malaria on farming are a reduction in the net profits on crops and reduced values from nondevelopment of farm lands. The survey included a detailed study of seventy-four tenant families, consisting of 299 individuals, on one plantation of 1,800 acres. There were 166 cases of malaria in 138 individuals out of a total of 299 persons. The actual time lost through malaria was 1,066 days of adult time from May to October, an average of 14.4 days for each family, or 6.42 adult days for each case of malaria. The loss in efficiency was 25 per cent. In May, June, September and October, there was a total loss directly affecting the crops of 660 adult days, equal to a money loss of $6,520.50, $2,200 of which was lost through sickness and $4,300 through inefficiency from malaria. The wage loss to the laborers was $660, and the net loss to the owner was $5,860.50.

ANTIGENS AND ANTIBODIES IN SCARLET FEVER

Many different organisms have been isolated from the blood and tissues in the acute stages of scarlet fever, but whether any one of them is responsible for the disease is yet to be determined. Thus far suspicion mostly lies on the streptococci. Most of the work designed to demonstrate antibodies specific against the streptococci in scarlatinal serums has been based on (1) agglutination, some claiming specific agglutination and others denying it; (2) the opsonic index, which indicates that the streptococci play a part in the disease, and (3) complement deviation, which has not given any results which are decisive. Recently Drs. G. F. and G. R. Dick,[2] finding that animal experiments had failed to give definite results, sought by complement deviation and cutaneous tests to ascertain whether or not the blood at the height of intoxication, extracts of the spleen and of the lymph glands, or the mouth and throat secretions harbor a possible ultramicroscopic virus, or one which declines to grow on mediums in use. The complement fixation tests with the blood and with the organ extracts, and the cutaneous tests with these extracts were wholly negative, according on the whole with the work of previous investigators with organ extracts. With mucus from the throat in scarlatinal anginas as antigen, however, they obtained positive complement fixation in twelve of twenty-two convalescent scarlatinal serums (54 per cent.). The predominant bacterial growth in these mucus antigens was that of the streptococci, and tests comparing the antigenic power of the predominant streptococcus with that of the mixed culture of the mucus, and with that of each of twenty-two other organisms isolated in scarlatinal anginas indicated that no antigenic property need be assumed other than that of the predominating streptococcus. Of interest in this connection is the report of Di Cristina,[3] who asserts that he has induced specific complement fixation with antigen prepared from the desquamated scales of scarlet fever. Indeed, he has made a vaccine of the scales, which he says brings about specific complement fixation in the blood after three injections, and which he asserts has protected normal children through a thorough exposure to scarlet fever. That which he declares confers immunity on the healthy organism, if it shall be substantiated in subsequent work by other investigators, would seem to be a clue to the etiology of the disease.

WHEN WOMEN VOTE

Speaking of the ten hour limit for women workers — a good thing — what about the new conditions that have arisen? Now woman votes and is assuming the responsibilities of mere man. For example, she acts as an election official, reports for duty at 6 a. m. and finishes her work somewhere between fourteen to twenty-four hours later. When one considers the environment of the ordinary polling place one wonders whether it would not be advisable to make the regulations for conducting elections accord with the law.

GERMAN AND AUSTRIAN MEDICAL JOURNALS

On two or three occasions THE JOURNAL has called attention to the fact that German and Austrian medical journals were not being received. This has been the condition of affairs for some months. Attention[4] was called to the fact that the military authorities had issued orders that medical books and periodicals which might in any way help the enemy in conducting the war should not be sent out of the country. An Austrian exchange last December related that the officers of the organization of German publishers petitioned the authorities to countermand this order, emphasizing the neutrality of medical science and noting the fact that German medical literature stood at the head of medical literature the world over, and that there was danger it might lose this position if exportation was forbidden, especially to neutral lands. As will be noted in our news columns, German and Austrian journals are now making their appearance, nearly all foreign exchanges coming to hand this week. Each one bears a stamp to the effect that it has been released for exportation. It is noted in some of the journals that only certain numbers are so released. Those not released presumably contain matter which the authorities think should not be given general publicity.

1. Van Dine, D. L.: The Relation of Malaria to Crop Production, Scient. Month., November, 1916, p. 431.
2. Dick, G. F. and G. R.: Immune Reactions in Scarlet Fever, Jour. Infect. Dis., 1916, xix, 175, 638.
3. Di Cristina, G.: Immunity Reaction and Vaccination Against Scarlet Fever, Pediatria, Naples, 1916, xxiv, 385; abstr., THE JOURNAL A. M. A., Sept. 30, 1916, p. 1049.
4. THE JOURNAL, Feb. 5, 1916, p. 440.

However that may be, it is encouraging once more to learn from original sources what is going on in medicine and surgery in Germany and Austria. We hope that this release of medical journals means that we shall again hear from our Berlin, Vienna and Budapest correspondents.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

DISTRICT OF COLUMBIA

Personal.—Dr. Joseph J. Kinyoun, bacteriologist of the health department, who at the request of the authorities of Winston-Salem, N. C., has been for several months engaged in the reorganization of the health department of that city, has resumed his duties in Washington.

Appointments in Health Department.—Dr. Joseph A. Murphy, formerly in the medical service of the United States Office of Indian Affairs, has been appointed chief medical and sanitary inspector of public schools.——Reid R. Ashworth, D. V. M., who has been for some years in the food inspection service, has been promoted to the position of chief food inspector.

ILLINOIS

Raise Requirements.—The state board of health will, it is announced, pass a resolution at its next meeting requiring an internship in a hospital for one year in addition to the five years now required for medical certification, effective for all students matriculating after Jan. 1, 1917.

Personal.—Dr. Charles N. Pence, East Alton, was knocked down by a horse, October 27, and three ribs were fractured. ——Dr. Carl Bernhardi, Rock Island, gave a dinner, October 25, in honor of Dr. Henry Matthey, Davenport, who has recently returned after service of more than a year at Brownsburg, Germany, where he was in charge of a base hospital. ——Dr. John T. Legier, Carmi, has been seriously ill with septicemia, due to an infected wound of the thumb.——Dr. J. Howard Beard has been appointed health officer of the University of Illinois, Champaign-Urbana.

Chicago

Typhoid at Englewood.—The sixteenth case of typhoid fever among students and teachers of the Englewood High School developed October 24. Up to the present the health authorities have not succeeded in locating the source of this epidemic.

Gynecologic Society Prizes.—The Chicago Gynecological Society announces that it will award a prize of $100 to the author of the best paper presented to the society during each year on any gynecologic or obstetric subject. Those who desire to enter this competition should apply to Dr. N. Sproat Heaney, secretary of the society, 104 South Michigan Avenue.

Asks for Orthopedic Home.—At the meeting of the Cook County board with representatives of thirty-five social service organizations, President Reinberg emphasized the need of a state institution for crippled children, where they may receive orthopedic treatment and the advantage of proper care and education. It was stated that the capacity of the three institutions at present in the state is limited to 200 children and that there are 3,000 children in need of orthopedic care.

Honor to Fenger.—At the Cook County Hospital, November 3, more than 200 Danes and Danish-Americans assembled at the unveiling of the memorial tablet to Dr. Christian Fenger. The tablet was presented by the Danes of Chicago to perpetuate the name of Fenger. Governor Dunne accepted the memorial for the state, and addresses were also delivered by Dr. Joseph L. Miller and others. The memorial is the work of two Danish artists of Chicago, was unveiled by Miss Julia Jenson and Master Andrew Lundsburg, and was decorated with wreaths by Miss Clara Sorenson.

To Care for Poor Children.—Health Commissioner Robertson announced, October 3, after a conference with Dr. A. Augustus O'Neill, president of the Chicago Medical Society, the appointment of an advisory committee to the health department on diseases of the eye, ear, nose and throat. This committee consists of Dr. P. J. H. Farrell, chairman; Dr. Martin M. Ritter, secretary, and Drs. Merlin Z. Albro, Ulysses J. Grim, William L. Noble and Robert Sonnenschein, and its function is to suggest and devise means by which schoolchildren suffering from diseases of the organs of special sense may receive attention free of charge if their parents are unable to pay for treatment.

KENTUCKY

Rulings on Quarantine.—By the ruling of the state board of health, October 4, diphtheria patients must not be released from quarantine until two negative reports have been received from the state laboratory or the city laboratory, and scarlet fever quarantine must not be raised under three days.

Personal.—Dr. Squire L. Helm, Lexington, first assistant physician at the Eastern State Hospital, has been appointed superintendent of the State Institute for the Feeble Minded, Frankfort, succeeding Dr. H. C. Kehoe, Frankfort.——Dr. Will F. Arnold, Bowling Green, is reported to be seriously ill as the result of a cerebral hemorrhage.——Dr. Prather B. Curlin, Hickman, fractured his right arm, September 28, while cranking his car.

New State Officers.—The sixty-fifth annual meeting of the Kentucky State Medical Association convened in Hopkinsville, October 25, under the presidency of Dr. James W. Kincaid, Catlettsburg. The selection of Dr. Milton Board, Louisville, as president-elect, vice Dr. Ap Morgan Vance, deceased, was ratified by the House of Delegates and the following officers were elected: president-elect, Dr. Philip H. Stewart, Paducah; vice presidents, Drs. Ben P. Earle, Charleston; Albert S. Brady, Greenup, and Joseph G. Gaither, Hopkinsville; councilors, Drs. James W. Kincaid, Catlettsburg; Joseph N. McCormack, Bowling Green, and Robert C. McChord, Lebanon; delegates to the American Medical Association, Drs. Arthur T. McCormack, Bowling Green, and Madison E. Alderson, Russellville; orator in medicine, Dr. Sidney J. Meyers, Louisville, and orator in surgery, Dr. Fred L. Koontz, Louisville. Dr. Elmer L. Henderson, Louisville, was elected councilor from the fifth district, succeeding Dr. Charles W. Hibbitt, on duty with the state troops on the Southern border; Dr. Daniel M. Griffith, Owensboro, was elected councilor from the second district, succeeding Dr. Cyrus Graham, Henderson, resigned. Ashland was selected as the place for the next meeting.

MARYLAND

Infantile Paralysis Quarantine Removed.—Health Commissioner John D. Blake, Baltimore, issued an order that removed the infantile paralysis quarantine, November 1. The order affected about 30,000 children less than 13 years of age who have been kept out of the schools on account of the disease. Conditions are not yet quite normal and caution against risking infection is urged by the health department. The condition in the counties is much improved and no new cases have been reported.

Meetings.—The twelfth Maryland Conference of Charities and Correction will be held at the Emerson Hotel in Baltimore in conjunction with the Delaware and District of Columbia conferences, November 14, 15 and 16. Prominent speakers from all over the country will take part in the program.——At a meeting of the Baltimore City Medical Society, November 3, infantile paralysis was discussed by the health officers and P. A. Surg. James P. Leake of the United States Public Health Service, who spoke on the epidemic in New York. A report on necropsy findings with an exhibition of specimens was made by Dr. John F. Hempel of the health department. Dr. John D. Blake, health commissioner, also spoke, telling how the health department handled the situation in Baltimore and stating that there were only 185 cases from the latter part of June to November 1, and of this number forty-seven were negroes.

MICHIGAN

Society Postgraduate Work.—The Jackson County Medical Society has completed a week of graduate study under the direction of an experienced medical teacher. During the day, clinics were held at a local hospital, and at these members of the society, under the direction of the instructor, examined patients. In the evenings lectures on different subjects were given. The interest manifested and the benefit obtained

prompted the society to take action in accordance with which one or two similar week-long programs will be arranged each year.

Internship Required.—At its meeting, held October 11, the Michigan State Board of Registration in Medicine adopted a resolution requiring all candidates for examination who matriculated in recognized medical colleges subsequent to Jan. 1, 1917, to have an additional qualification of one year's internship in a recognized hospital before being admitted to the examination for licensure. This is the fifth state to require a year's internship. The requirement became effective for all graduates in Pennsylvania in 1914, in New Jersey in 1916, and will become effective in Rhode Island in 1917, and North Dakota in 1918. In Michigan it will apply to graduates in 1921 and thereafter.

Personal.—A banquet was given, October 27, by the citizens of Clare, in honor of Dr. Thomas H. Maynard, who has just completed half a century in practice of medicine.——Dr. William H. Price, health officer of Detroit, was elected president of the International Milk Inspectors' Association at its fifth annual meeting, held recently in Springfield, Mass.——Dr. Arthur W. Tucker, Grand Rapids, who was recently operated on for removal of the spleen, is reported to be convalescent.——Dr. Arthur F. Fischer, Hancock, has been reelected president of the Michigan Antituberculosis Society.——Dr. and Mrs. Charles C. Dellenbaugh, Portland, celebrated their golden wedding anniversary, October 4.——Fire of unknown origin destroyed the new house of Dr. Julius C. Clippert, Detroit, October 7.——Dr. George A. Conrad, Houghton, has resigned as township physician and village health officer, to become chief surgeon of the Mohawk and Wolverine Mining Company, with headquarters at Mohawk.

MINNESOTA

Southern Minnesota Physicians to Meet.—The annual meeting of the Southern Minnesota Medical Association will be held at Mankato, December 4 and 5, under the presidency of Dr. E. Starr Judd, Rochester. The annual banquet will be held on the evening of the first day. Among the essayists from outside the state are Drs. George W. Crile, Cleveland, and Albert J. Ochsner, Chicago.

Personal.—Dr. Egerton L. Crispin, who has been associated with the Mayo Clinic staff, Rochester, for three years, has moved to Los Angeles.——The office and library of Dr. Hugh C. Arey, Excelsior, were burned, October 27, with a loss of about $5,000.——Dr. Everton J. Abbott, St. Paul, who has been seriously ill, is reported to be improving.——Dr. William N. Theissen, Faribault, who was operated on for appendicitis and the removal of gallstones at St. Lucas Hospital, October 18, is reported doing well.——Dr. Arthur C. Rogers, Faribault, is said to be seriously ill with anemia at the Hospital of Minnesota, Minneapolis.——Dr. Myron Sherper, St. Paul, who has been under treatment at a local hospital on account of an injury of the arm, has recovered and resumed practice.

NEW YORK

Personal.—Dr. Arthur W. Booth, Elmira, has been elected president; Dr. Lewis S. Pilcher, Brooklyn, vice president, and Dr. Willard J. Denno, New York, secretary, of the State Board of Medical Examiners.

Annual Elections.—At the forty-eighth annual meeting of the Medical Association of Central New York, held in Buffalo, October 19, the following officers were elected: president, Dr. Ledra Heazlit, Auburn; vice presidents, Drs. John J. Buettner, Syracuse, and Charles W. Hennington, Rochester; secretary, Dr. Thomas F. Laurie, Auburn. Auburn was selected as the next place of meeting.——At the meeting of the health officers of the state, who took the recent course in the Syracuse College of Medicine, Dr. Charles H. Bennett, Sodus, was elected president; Dr. Ernest H. Wiedrich, Ontario, secretary, and Dr. Robert Knight, Seneca Falls, treasurer.

New York City

National Committee for the Prevention of Blindness.—This organization will hold its second annual meeting in the New York Academy of Medicine, November 24, at 4:30 p. m. The president, William Fellows Morgan, will preside and Surg. John McMullen, U. S. P. H. S., will deliver the chief address.

New Red Cross Bureau in New York.—The American Red Cross has established a special information bureau in the Metropolitan Tower, New York, under the charge of Mr. Albert Staub. It is the purpose of this bureau to keep the more than 200 Red Cross chapters in this country constantly advised as to the needs of the foreign Red Cross societies and representatives.

Personal.—Dr. James J. Walsh, New York, was presented with the Laetare Medal by the University of Notre Dame, Indiana, October 21.——Dr. Fred H. Albee, Manhattan, has returned after service in France.——Dr. William Sharpe, New York, delivered an address on recent advances in brain surgery, illustrated by moving pictures, before the College of Physicians, Pittsburgh, October 27.

Plans for Army Hospital.—The Presbyterian Base Hospital Unit of the American Red Cross, organized when similar units were organized in the New York and Bellevue hospitals, has prepared lantern slides of plans and drawings of a model base hospital which were recently exhibited in the lecture room of the hospital. They represent the working out of the problem as suggested by the surgeon-general of the army for the construction and preparation of a base hospital of 500 beds for use in the United States Army in time of war.

After-Care of Paralysis Victims.—Plans for the after-care of the victims of infantile paralysis have taken definite shape. The plans contemplate a central body to look after all the children discharged from hospitals, the training of nurses, especially for the work, and the districting of the city in order to conduct the work systematically. Dr. L. Emmett Holt is reported as having told the committee on after-care that there will be between 4,000 and 5,000 children in New York left helpless from the epidemic. The transportation committee has two ambulances and two motor cars running daily, and the use of two more cars has been promised. These cars take the children to and from the dispensary or hospital. The establishment of a day nursery for crippled children, where they may be cared for by trained nurses and taught at the same time, has been suggested. The Post-Graduate Hospital has opened a department for the after-care of children crippled from poliomyelitis where the latest appliances for treatment have been installed.

NORTH CAROLINA

Sanatorium Notes.—The sanatorium of Dr. Buxton B. Williams, Greensboro, has been consolidated with the Bloomsbury Sanatorium at Raleigh, and the institute will be known hereafter as the Williams-Oliver Sanatorium. It will be under the charge of Drs. Buxton B. Williams and Adlai S. Oliver.——Tranquil Park Sanitarium was formally opened October 14. Dr. John Q Myers, Charlotte, is president and medical director of the institute.

Personal.—Dr. Joseph Akerman, Wilmington, has been appointed director of the University Hospital, Augusta, Ga., succeeding Dr. William C. Lyle, resigned.——Dr. Edward M. Gayle has resigned from the medical staff of the State Hospital, Morganton.——Senior Surg. James B. Stoner, U. S. P. H. S., who has been for two years in charge of the United States State Hospital at Wilmington, has been transferred to Ellis Island, New York, where after two or three months in charge of the immigration station, he will take charge of the immigration work at Montreal.

Hospital Notes.—The Wilmington Marine Hospital has been reopened and placed under the charge of Dr. John C. Wessell. The hospital will be used also as a research station in the pellagra work of the state.——The Gastonia State Hospital has leased and will occupy the fifth floor of the Realty Building in addition to the two floors already in use.——The new hospital at Berrien Springs, recently erected by the Sprunt family of Wilmington, at a cost of $15,000, was opened September 19.——The Martin Memorial Hospital, Mount Airy, has been incorporated with a capital stock of $25,000.

PENNSYLVANIA

Cost of Baby Malady.—State Health Commissioner Dixon November 1 received a report showing that the state's fight against infantile paralysis from the start of the outbreak, July 1 to October 1, cost the commonwealth $61,004. This sum does not include any of the money paid to the regular health officers of the department.

For New Hospital.—A campaign to raise $150,000 for the new Sacred Heart Hospital, Allentown, ended October 31 with contributions aggregating $183,000, not including an offer from an anonymous donor to buy surgical instruments to the value of $5,000. The campaign was nonsectarian and was conducted under the direction of Monsignor Peter

Masson, with Harvey E. Bohner as chairman of the executive committee.

Industrial and Efficiency Conference.—The fourth annual Industrial Welfare and Efficiency Conference will be held under the direction of the Pennsylvania department of labor and industry in the hall of the house of representatives, Harrisburg, November 21-23. The Engineers' Society of Pennsylvania is cooperating. On Tuesday morning, after the usual addresses of welcome, Hon. Harry A. Mackey, chairman of the state workmen's compensation board, will speak on "Nine Months of the Workmen's Compensation Law in Pennsylvania." This will be discussed by representatives of the employers and employees, also by Dr. William L. Estes, chairman of the committee on workmen's compensation of the Pennsylvania State Medical Society. In the afternoon, "The Accident Problem on Steam and Electric Railways and the Evils of Railway Trespassing" will be considered. Among other subjects to be discussed during the three day session are "Accident Problems of the Iron and Steel Industries, of Electric Companies, and of General Industries," "Employees Duty toward Accident Prevention," "Standardization of Safety Committees and Safety Committee Work," "Fire Prevention," "Industrial Education" and the "Elimination of Labor Disputes." On Thursday, the last day of the conference, is a special medical program, including a paper by Surgeon Benjamin S. Warren, U. S. P. H. S., on "Health Insurance," the discussion to be opened by Dr. John B. Andrews, secretary of the American Association for Labor Legislation; one by Dr. Loyal A. Shondy on "Medical Supervision for Workmen," and one by Surgeon Joseph W. Schereschewsky, U. S. P. H. S., on "The Relation of the Industrial Physician to Modern Industry." In the afternoon, Dr. William C. Posey, Philadelphia, will speak on "Industrial Eye Injuries and Their Prevention" and Mr. A. P. Bowers of the Pennsylvania Federation of Labor will speak on "Tuberculosis as it Affects the Workers."

Philadelphia

Pathological Society Lecture.—The annual Samuel G. Gross lecture of the Pathological Society and one of the series of Rush lectures for 1916-1917 was delivered Thursday evening, November 9, at the College of Physicians building by Prof. Lawrence J. Henderson of Harvard University who spoke on the subject of acidosis.

News of Institutions about Philadelphia.—At the Franklin Institute on Thursday evening, November 9, "The Fundamental Principles of Good Lighting" were explained by P. G. Nutting, Ph.D., director of research laboratory, Westinghouse Electric and Manufacturing Company, Pittsburgh. ——The Rush Hospital for Consumptives will open a pavilion at its country branch, Malvern, for children ranging from 5 to 10 years of age, the charge to be five dollars per week. Applicants are to be examined at the city hospital before admission.——Health clinics are conducted on Monday and Wednesday afternoons at the Childrens' Hospital. Nurses from the social service department visit children living in the ward and teach parents how to carry out physicians' advice.——The Child Federation Little Mothers' Leagues reopened, November 8, with sixty-five classes for instruction in infant care. Municipal nurses and child federation volunteer workers conduct these clinics in the public schools, social centers and settlements.——The division of rentals and repairs of the Philadelphia Housing Association has aided in the abatement of insanitary and illegal housing conditions by reaching the absentee landlord and urging him to improve his property.——The Women's Hospital is holding dental clinics in charge of Dr. Matilda Groth where children of school age are treated on Saturday mornings.——The Children's Homeopathic Hospital has installed a fully equipped Roentgen-ray apparatus at a cost of nearly $2,000. The hospital has under treatment in its wards twelve cases of paralysis resulting from acute attacks of anterior poliomyelitis; also a number in the outpatient orthopedic clinic.

TEXAS

Dengue.—The epidemic of dengue fever continues in Floresville.——Dengue is reported to be epidemic at Runge.

Saving in Serum and Vaccine.—The state board of health reports that from Sept. 1, 1915, to July 1, 1916, under the system of distributing biologic products, the saving to the people of Texas was $74,717.15, because of the reduction in the price of serum and vaccine points.

Personal.—Dr. William B. Collins, state health officer, Austin, sailed October 29 from New Orleans on a trip to Central and South America. He expects to make a survey of the sanitation and quarantine conditions in ports of call and shipping points on the Atlantic Coast.——Dr. Roy W. Dunlap, Palestine, left October 19 for London, where he expects to spend six months in study in an eye and ear hospital.

Health Charts in Demand.—The state board of health is receiving numerous requests for the health chart arranged by Dr. William A. Davis, Jr., secretary of the board. Ten lessons are included in the chart which have been arranged for use in health institutes and schools of the state. The lessons include home sanitation, stimulants, personal hygiene, accidents, uninvited guests, preventable diseases, vital statistics, school sanitation and social hygiene.

VIRGINIA

Personal.—Dr. Harry B. Hinchman has been appointed resident intern at the Virginia Hospital, Richmond, succeeding Dr. Frederick B. Fletcher, resigned.——Dr. George G. Hankins of the staff of the Eastern State Hospital for the Insane, Williamsburg, was attacked by an insane patient and sustained a fracture of the skull.

Restraint of Dangerous Consumptives in Virginia.—According to public health reports for Oct. 27, 1916, any tuberculous person in Virginia who violates the laws prohibiting expectoration in public places and vehicles or who deliberately and continuously exposes any other person to infection may, under an act passed March 17, 1916, be restrained and detained in some suitable place for a period not exceeding twelve months, or may be required to give bond in a penalty to be determined by the court, conditioned on the cessation of the practice complained of.

State Society Meeting.—At the forty-seventh annual meeting of the Medical Society of Virginia, held in Norfolk, October 24 to 27, under the presidency of Dr. Joseph A. White, Richmond, the following officers were elected: president, Dr. George A. Stover, South Boston; vice presidents, Drs. Charles S. Webb, Bowling Green; Achilles L. Tynes, Staunton, and William B. Barham, Newsoms; secretary, Dr. Paulus A. Irving, Farmville (reelected); treasurer, Dr. Mark W. Peyser, Richmond; members of the executive council, Drs. Alfred L. Gray, Richmond, and Frank H. Hancock, Norfolk, at large, and Dr. Hunter H. McGuire from the seventh district. Dr. Samuel T. A. Kent from the fifth district, and Dr. T. A. Riley from the eighth district; Dr. William F. Drewry, Petersburg, was selected to succeed Dr. Henry S. MacLean (retired); member of the State Board of Medical Examiners, Dr. Hampden A. Burke, Petersburg, succeeding Dr. Otho C. Wright; delegate to the American Medical Association, Dr. Robert C. Bryan, Richmond; alternate, Dr. Charles V. Carrington, Richmond. Roanoke was selected as the next place of meeting.

GENERAL

Red Cross Magazine Moves.—Mr. Eliot Wadsworth, acting chairman of the central committee of the American Red Cross, announces a change in the place of publication of the American Red Cross Magazine, which will hereafter be produced by the Doubleday-Page Company of Garden City, Long Island. The magazine will be enlarged and members will be asked on renewing their membership to pay $1 additional for subscription to the magazine.

Tri-State Society Meetings.—At the forty-third annual meeting of the Northern Tri-State Medical Society, held in South Bend, Ind., October 24, Dr. Miles F. Porter, Fort Wayne, was elected president; Dr. Elmer L. Eggleston, Battle Creek, Mich., vice president; Dr. George W. Spohn, Elkhart, Ind., secretary (reelected), and Dr. Harry F. Mitchell, South Bend, treasurer.——The annual meeting of the Tri-State Medical Society of Illinois, Missouri and Iowa was held in Kansas City, October 25 to 27. Iowa City was selected as the next place of meeting. Dr. G. Wilse Robinson, Kansas City, was elected president; Dr. J. W. Martin, Des Moines, vice president, and Dr. Charles H. Parkes, Chicago, was reelected secretary-treasurer.

Heroin Addiction.—At a meeting of the committee on drug addiction, of the National Committee on Prisons, discussion revealed that heroin is the favorite drug among young addicts and those of the first decades of life. In view of this fact the committee passed resolutions to the effect that since heroin is not a drug of sufficient value to preclude its being

replaced by other drugs or measures that do not develop and maintain vice and crime, it is recommended that federal legislation be adopted to prevent the importation, manufacture and sale of this dangerous habit forming drug in the United States. The committee on drug addiction consists of Dr. Simon Baruch, chairman, Drs. Samuel W. Lambert, Fredrick Peterson and Frederick Tilney, New York, and Ex-Surg.-Gen. Charles F. Stokes, U. S. Navy.

Bequests and Donations.—The following bequests and donations have recently been announced:

Brooklyn Home for Consumptives, $5,000, by the will of Mrs. Albert Bierstadt.

Chicago Lying-In Hospital, a donation of $100,000, by Mrs. James Hobart Moore.

Methodist Hospital and Maternity Hospital, Philadelphia, each $5,000, contingent on the legatees dying childless, by the will of Amelia M. Boyd.

Philadelphia Home for Incurables, $10,000, to endow two beds in memory of his parents Dr. William L. and Martha H. Wright, and $5,000 each to the Pennsylvania, Hahnemann, Jewish, Jefferson and German Hospitals, Philadelphia, the Childrens Aid Society and Society to Protect Children from Cruelty, and the residue of the estate to the Home for Incurables, by the will of Major T. Morris Wright.

For the equipment and endowment of the new library of the New York Medical College and Hospital for Women as a memorial to his son, the late George Carlton Dominick, by Mr. W. Dominick, New York City.

Red Cross Base Hospital Units.—The following base Red Cross Hospital units have already been organized and the money for their equipment subscribed: New York, six units; Chicago, four units; Boston, three units; Cleveland, Philadelphia and Detroit, each one unit. In addition to these sixteen units, hospital units are in process of organization at the following points, but the money for their equipment has not as yet been subscribed: Philadelphia, St. Louis, Cincinnati, the Mayo Clinic, Rochester, Minn., Johns Hopkins Hospital, Baltimore, Rochester, N. Y., Nashville, Tenn., and San Francisco, each one unit. These hospitals are purely military units, organized at the request of the medical department of the Army and Navy and equipped with a view to the needs of the military service. The muster-in pledge requires only national service when called into the military service of the United States, and the judge advocate-general of the Army has decided that this authorizes the calling out of these units by the president in time of war or when war is imminent.

Causes of Death for 1915.—A preliminary announcement with reference to mortality in 1915 issued by the Bureau of the Census, indicates that nearly one third of the 909,155 deaths reported for that year in the "registration area," which contained approximately 67 per cent. of the population, were due to three causes—heart diseases, tuberculosis, and pneumonia—and nearly two thirds were charged to twelve causes —the three just named, together with Bright's disease and nephritis, cancer apoplexy, diarrhea and enteritis, arterial diseases, diabetes, influenza, diphtheria and typhoid fever.

HEART DISEASES

Deaths from heart diseases (organic diseases of the heart and endocarditis) in the registration area in 1915 numbered 105,200, or 156.2 per 100,000 population. In 1900 it was only 123.1 per 100,000.

TUBERCULOSIS

Tuberculosis in its various forms claimed 98,194 in 1915, of whom 85,993 died from tuberculosis of the lungs. From 1904 to 1915, the death rate from tuberculosis in all its forms fell from 200.7 to 145.8 per 100,000, the decline being continuous from year to year. This is a drop of more than 25 per cent. Even yet tuberculosis causes more deaths annually than any other form of illness except heart diseases, and about 46 per cent. more than all external causes—accidents, homicides and suicides—combined.

PNEUMONIA

Pneumonia (including bronchopneumonia) caused 89,326 deaths in the registration area in 1915, or 132.7 per 100,000. This rate is higher than for 1912, 1913 and 1914. The rate for 1914, 127 per 100,000, was the lowest on record. The death rate from this disease has shown a marked decline since 1900, when it was 180.5 per 100,000. Its fluctuations from year to year have been pronounced.

NEPHRITIS

The only remaining death rate higher than 100 per 100,000 in 1915 was that for acute and chronic nephritis, 104.7. The total number of deaths due to these maladies in 1915 was 70,500; of this number, 64,480 were caused by chronic nephritis and 6,020 by acute nephritis. The mortality rate from these two cases increased from 89 per 100,000 in 1900 to 103.4 in 1905, fluctuated more or less between 1905 and 1912, and has shown little change since the last mentioned year.

CANCER

Next in order of deadliness come cancer and other malignant tumors, which caused 54,584 deaths in 1915. Of these, 21,221, or nearly 39 per cent., resulted from cancers of the stomach and liver. The death rate from cancer has risen from 63 per 100,000 in 1900 to 81.1 in 1915.

Apoplexy was the cause of 53,397 deaths, or 79.3 per 100,000. The rate from this disease has increased gradually, with occasional slight declines, since 1900, when it stood at 67.5.

DIARRHEA AND ENTERITIS

Diarrhea and enteritis caused 48,325 deaths in 1915, or 71.7 per 100,000. This rate has shown a marked falling off in recent years, having been 90.2 in 1913 and 79.4 in 1914. Nearly five sixths of the total number of deaths charged to these causes in 1915 were of infants under 2 years of age.

ARTERIAL

Arterial diseases of various kinds—atheroma, aneurysm, etc.—caused 15,685 deaths in 1915, or 23.3 per 100,000. This rate is higher than that for 1914, and is much higher than that for 1900, which was 6.1.

DIABETES

Diabetes was the cause of 11,775 deaths, or 17.5 per 100,000. The rate from this disease has risen almost continuously from year to year since 1900, when it was 9.7 per 100,000.

INFLUENZA, DIPHTHERIA AND CROUP

Influenza caused 10,768 deaths in the registration area in 1915, the rate being 16 per 100,000. The rate was higher in 1915 than during several years preceding, but was somewhat lower than the average between 1901 and 1910. No other epidemic disease produced a death rate as high as 16 per 100,000 in 1915. The fatal cases of diphtheria and croup—which are classed together in the statistics, but practically all of which are of diphtheria—numbered 10,544, or 15.7 per 100,000, in that year, the rate having fallen from 43.3 in 1900. This decline of more than 60 per cent. is relatively greater than that shown by any other important cause of death except typhoid fever.

THE TYPHOID RATE

The mortality rate from typhoid fever has shown a most gratifying and remarkable decline since 1900, having dropped from 35.9 per 100,000 in that year to 12.4 in 1915, the decrease amounting to nearly two thirds. This decline is greater, relatively, than that shown for any other important cause of death. The total number of deaths due to typhoid fever in 1915 was 8,332. Improved methods of sanitation, including the betterment of the water supply and sewerage systems, the campaign against the fly, and other preventive measures, have proved their efficacy in a striking manner by a reduction of almost two thirds in the typhoid death rate during a period covering but a decade and a half.

WHOOPING COUGH, MEASLES AND SCARLET FEVER

The principal epidemic maladies of childhood—whooping cough, measles and scarlet fever—were together responsible for 11,489 deaths of both adults and children, or 17.1 per 100,000, in the registration area in 1915, the rates for the three diseases separately being 8.1, 5.4 and 3.6, respectively. In 1913 measles caused a greater mortality than either of the other diseases, but in 1914 and 1915 whooping cough had first place. In every year since and including 1910, as well as in several preceding years, measles has caused a greater number of deaths than scarlet fever. The mortality rates for all three of these diseases fluctuate greatly from year to year. The rates for measles and scarlet fever in 1915 were lowest since 1900, while that for whooping cough was somewhat above the lowest recorded rate for this disease, 6.5 in 1904, although far below the highest, 15.8 in 1903.

THE "SAFETY-FIRST" CAMPAIGN

The "safety-first" campaign, inaugurated a few years ago, has apparently borne good fruit. For 1913, 54,011 deaths from accident were reported; for 1914 the corresponding number was reduced to 51,770, and for 1915 to 51,406; and during this period there was not only an increase in the population of the registration area as it existed in 1913, but an increase in the extent of the area itself. The rate per

100,000 population for accidental deaths fell from 85.3 in 1913 to 78.5 in 1914 and to 76.3 in 1915. There has been a considerable reduction in fatalities due to railway, street-car, mine, and machinery accidents, and the increase in those resulting from automobile accidents has not been as rapid as the increase in the number of machines in use.

Deaths due to railway accidents and injuries totaled 6,652 in the registration area in 1915, or 9.9 per 100,000. This number includes fatalities resulting from collisions between railway trains and vehicles at grade crossings. This death rate is the lowest on record and shows a marked decline during the past ten years.

Deaths resulting from street-car accidents and injuries numbered 1,555, or 2.3 per 100,000. This rate, like that for railway fatalities, is the lowest on record and shows a material falling off during the past ten years.

Automobile accidents and injuries caused 3,978 deaths in 1915, or 5.9 per 100,000. There has been an increase in this rate from year to year, but, as already mentioned, the increase has not been so rapid as that in the number of machines in use.

The number of deaths from mine accidents and injuries in the registration area in 1915 was 2,009, corresponding to a rate of 3 per 100,000. This rate shows a material decline as compared with the corresponding figure for 1913, 3.6, and a very great decline as compared with that for 1907, 4.8, which is the highest on record.

Deaths caused by machinery accidents in 1915 numbered 1,257, or 1.9 per 100,000. This rate also shows a marked decline during recent years, the corresponding figures for 1913 and 1914 being 2.4 and 2, respectively. The highest recorded rate from this cause is 2.5, for 1907.

SUICIDES

The number of suicides reported for 1915 was 11,216, or 16.7 per 100,000 population. The suicide rate has not varied very greatly during the past ten years.

DEATHS CAUSED BY FIREARMS

The census figures bring out the astonishing fact that during the year 1915 firearms caused more deaths than railroad accidents, more than five times as many as street-car accidents, nearly as many as railroad and street-car accidents combined, and more than twice as many as automobile accidents. The total number of deaths due to the use of firearms in the registration area in 1915 was 7,594, corresponding to a rate of 11.9 per 100,000. Of these deaths, 3,608 were suicides, 2,885 were homicides, and 1,501 were accidental (including those concerning which the status as to suicide, homicide, or accident was in doubt). The suicidal use of firearms has increased from year to year since 1913; the frequency of accidental deaths due to their use shows a slight decline during recent years, and the homicidal use of firearms show a decline as compared with 1913 and 1914 but an increase as compared with 1910, 1911, and 1912. No separate data as to homicides by firearms for the years prior to 1910 are available.

FOREIGN

Nobel Prizes Reserved.—It was announced from Sweden, October 28, that no Nobel prizes for science or medicine would be awarded for this year, but that the money would be reserved for 1917. The Nobel prize for 1915 has also been reserved and will be added to the special fund.

Prize in Ophthalmology.—The German Ophthalmologische Gesellschaft has divided between Lindner of Vienna and Ohm of Bottrop the von Graefe-von Welz prize for the best article published in 1911-1913 in the *Archiv für Ophthalmologie*. Their articles were on trachoma and inclusion blennorrhea, and on miner's nystagmus.

Gaining an Hour of Daylight.—The Prussian higher authorities have been investigating the effect of setting the clocks forward an hour during summer, as was done from May to September in Prussia. The verdict among manufacturers and other establishments has been extremely favorable. All extol the advantages of the plan, and the Berlin Chamber of Commerce advocates setting the clock forward April 1 instead of waiting for May, next year. The consensus of opinion among the worker seems to be also in favor of it.

South American Society for Microbiology, Pathology and Hygiene.—A society was organized in South America with the above title, at the National Medical Congress held at Buenos Aires in September. The new society is to publish a review simultaneously at Rio de Janeiro and at Buenos Aires, in Spanish, Portuguese, French, English and German. The editorial staff consists of R. Krauss, director of the bacteriologic institute of Buenos Aires, and O. Cruz, director of the similar institution in southern Brazil and chief health officer of Rio de Janeiro when yellow fever was eradicated there.

Women in the German Universities.—The *Deutsche medizinische Wochenschrift*, September 21, states that women form 10.5 per cent. of the students enrolled in the German universities now, in contrast to 4.8 per cent. five years ago. As so many of the students are serving with the troops, the women form actually over 66 per cent. of those taking the courses now. The increase is the largest in the medical department; 25.3 per cent. are studying medicine, against 20 per cent. five years ago. The actual numbers are 1,394 in 1916 against 582 five years ago.

Infant Mortality in Berlin.—The *Deutsche medizinische Wochenschrift* of September 28 states that the cool summer and the extreme attention paid to infant welfare have exerted a progressively favorable influence on infant mortality in Berlin. This is especially evident on comparing the mortality for July, 1916, with that for the same month the year before. In 1916 there were only 210 deaths among infants during July, while the corresponding figure for July, 1915, was 410. These figures represent in 1916 only 11.26 per cent. of the total mortality, in contrast to the 19.12 per cent. of the year before. The general mortality in Berlin is also lower than it was in July, 1915.

Deaths in the Profession Abroad.—B. Riedel, aged 70, professor of surgery at the University of Jena and chief of the surgical clinic until 1910 when he resigned on account of an affection requiring amputation of one leg. He was a pioneer in certain phases of abdominal surgery and is said to have been the first to operate for reduction of dislocation of the hip joint. The last few years he has devoted himself almost exclusively to the questions connected with artificial legs, utilizing his own personal experiences.——E. Richter, aged 79, formerly professor of surgery at the University of Breslau. He was trained as an army surgeon and long kept up his connection with the army and published numerous works bearing on military matters, effects of bullets, etc. Since 1880 he has been editor of the *Zentralblatt für Chirurgie* which, with König and von Volkmann, he founded then.——J. Pollak, professor of otology at the University of Vienna.——G. Salomon, professor of physiologic chemistry at the University of Berlin, aged 67. His death was the result of a subway accident.——W. Reiss, professor of skin and venereal diseases at the University of Cracow, aged 50.

Special Typhus Service in Mexico Discontinued.—The April bulletin issued by the Mexican National Board of Health, just received, relates that an official order put an end to the special typhus service described in THE JOURNAL, Aug. 5, 1916, p. 447. The regular public health service is considered capable of keeping the disease under control now and the extra force was dismissed. During the month there were 1,075 new cases of typhus reported and 276 visits were made to the seventy churches under inspection in Mexico City and nearby communities. The bulletin states that a total of 4,763 persons were denied admittance to the churches, including 1,771 "notoriously dirty," 2,238 who were carrying lunch, 397 beggars and 357 sick persons. Of the 44 theaters inspected, 37 were compelled to clean up and 1,149 notoriously dirty persons were turned away. There are twelve establishments for bathing and 31,124 persons were given a lice-killing bath and 6,870 were placed in the hands of the barber. The chief, A. Pruneda, is in charge of the regular service, with ten medical inspectors. In regard to the course of the epidemic, the weekly report of the United States Public Health Service, October 20, reports 699 cases of typhus at Mexico City between August 28 and September 23.

Foreign Exchanges.—The mail the last six days has brought a number of German and Austrian exchanges. Each is stamped "Released for exportation by the military authorities." The *Medizinische Klinik* has this printed on the title page as: *Zur Ausfuhr zugelassen. Sanitätsamt d. mil. Institute. No. 1386; 1403; 1404; 1413 Z.* In the issue for two weeks later the numbers are *No. 1479; 1490; 1491; 1507 Z.*, and the following week *No. 1541; 1572; 1581; 1589; 1598 Z.* The *Deutsche medizinische Wochenschrift* has merely stamped on the cover *Vom Sanitatsamt des 19 Armeekorps zur Ausfuhr zugelassen.* A drug journal from Berlin has stamped on the cover *Vom Oberkommando i. d. Marken zur Ausfuhr i. d. Ausland zugelassen.* The *Wiener klinische Wochenschrift* has merely *Zensuriert* stamped on the cover. Russian

exchanges have been coming regularly during the last two years as before, with few exceptions, and they are always stamped with "Rapid Military Censoring," *Bystro voennoiu tsenzuroi. No. 693* or other number. The two *Zeitschrifts* in this batch of foreign mail are stamped on the cover: *Tauschexemplar. Auswechselungsanstalt zugleich Ausfgsstelle. XIX Armeekorps, Leipzig.* The exchanges are all of dates between September 17 and October 1.

CANADA

University News.—War has ravaged the attendance at the University of Toronto. In some departments the enrolment is just one half of that in 1913-1914. In medicine in 1916-1917, the total registration is 399; in 1915-1916 it was 614; in 1914-1915 it was 660.

Hospital News.—Five hundred beds are now available for returned soldiers at the new hospital for the insane at Cobourg, Ont., and will be put into service as soon as the hospital is handed over to the Canadian Hospital Commission. In four or five months the Ontario government will have completed additional accommodation in that institution for 700 to 800 patients.——The Canadian Hospital Commission wishes it to be known that they have now established an artificial limb institute in Toronto, equipped to make the most improved artificial limbs. The Dominion government will furnish all artificial limbs free of charge to returned soldiers who require them.

Personals.—Dr. John R. Irwin, Cobourg, Ont., who has been on service with the R. A. M. C., and who was awarded the Military Cross for conspicuous bravery, returned to Cobourg, November 2.——Dr. Charles K. Clarke, superintendent of the Toronto General Hospital, has resigned and will devote his time to social work and scientific medicine and to his duties as dean of the Medical Faculty of the University of Toronto.——Capt. Alfred K. Haywood, who was assistant superintendent of the Toronto General Hospital but who has been at the front since war was declared, has been given command of the Canadian Convalescent Hospital, Woodcote Park, Epsom, England.——It is reported now that Surg.-Gen. Carleton Jones, C. M. G., director-general of the Canadian army medical services in England, will remain in England and may continue in his present position. ——Dr. Clarence Young, Guelph, Ont., who enlisted last spring and joined the R. A. M. C., has been awarded the Military Cross for bravery on the field.——Drs. Julia Thomas and Jennie Smillie, Toronto, recently gave a tea in honor of Drs. Jane P. Sproule, Victoria Reid and Isabella S. Wood, who are going abroad in a few days for overseas military work.——Dr. Catherine Travis, Montreal, who spent six months in Serbia with the American Red Cross, has returned to Montreal.——Lieut.-Col. J. George Adami, professor of pathology in McGill University, Montreal, has returned from England.——Capt. Robert D. Sanson, Calgary, Alta., who has been abroad with the C. A. M. C., has been declared unfit for further service.

WAR NOTES

Antitoxin to Warring Nations.—Health Commissioner Haven Emerson announced to the subcommittee on budget of the board of estimate of New York City that the board of health has sold $205,000 worth of antitoxin to France, England and Italy since the outbreak of the pan-European war.

Physicians for Service in Palestine.—Physicians and nurses are wanted to join the American Zionist medical unit for Palestine which is about to be formed by the women's Zionist organization "Hadassah." Those who are interested are requested to communicate with Miss Henrietta Szold, 2 Pinehurst Ave., New York City.

Collection of Medical Literature on the War.—The chief of the medical department of the German army, von Schjerning has published an appeal to physicians for aid in collecting for the library of the Military-Medical Academy at Berlin every work bearing on the medical, surgical and sanitary aspects of the war, the whole to form a complete library of medical war literature. Authors are urged to send copies of their work to the Kaiser Wilhelms Akademie.

Netherlands Ambulances at the Seat of War.—Dr. Wiederhold has left Holland and arrived at Christiania on his way to Petrograd to join the Netherlands Ambulance with the Russian troops and relieve Dr. Bijleveld who will return home. Dr. Van Dijk of Rotterdam has gone to join the Netherlands Ambulance at Saloniki, going by way of London and Paris, accompanied by four nurses. Drs. Hijman and De Grott also left recently to join the Netherlands Ambulance in Germany. It is stationed at Olmütz.

American Red Cross Work in Bavaria.—The American Red Cross Hospital in Munich has been administering to wounded soldiers for more than two years. On account of the tension between the United States and Germany, the committee in charge of the hospital inquired whether the continuation of their activities was agreeable to the German community; whether the hospital should be kept open. The municipal authorities emphatically requested that the hospital should continue its activities as before.

Scarcity of Auto Tires in Switzerland.—Our Basel exchange brings an appeal from the president of the Swiss Aerztekommission to physicians for their support in a contemplated appeal to the higher authorities to find ways and means to obtain tires for the automobiles of medical men, in the interests of the sick as well as of the physicians themselves. At present many physicians are unable to use their automobiles from inability to procure tires. The wholesale dealers allege they have none in stock, and the army authorities will not encroach on their reserves.

War Losses in the Profession in Germany.—The *Münchener medizinische Wochenschrift* of September 26, quotes statistics showing that the German casualty lists, 1 to 600, have contained the names of 343 physicians, including 104 active army or navy surgeons, 128 physicians of the reserves, 102 assistant surgeons and 8 civilian physicians; 185 have died of disease, a total of 528 deaths among the members of the medical profession with the German army and navy. In addition to these, 176 have been severely and 553 slightly wounded; 156 have been taken prisoners, and 87 are missing. The total figure is thus 1,500.

Ambulance Activities.—Twenty-five experienced American ambulance drivers with the French Army arrived at Saloniki, November 5, and will be assigned to duty with the Red Cross unit at that point. They are to be formed into a new section in charge of Lovering Hill, New York, and will operate thirty cars.——A. Piatt Andrews, chief inspector of the American Ambulance Corps in France, hopes to take back fifty additional men when he returns to France in December. ——Thirty volunteer ambulance drivers and two orderlies sailed from New York, October 21, for service with the American Ambulance in France.

Social Insurance After the War.—Hanauer of Frankfurt, Germany, prophesies that after the war the benefits of social insurance will be extended to larger circles than at present, possibly to all with incomes up to $1,250 or thereabouts. More than half the population are now enrolled on the insurance lists, and he is confident that ere long five sixths will be included. The temporary war regulations for care of prospective mothers, for children, etc., will be enlarged and rendered permanent. The whole trend will be to enlarge the scope of existing measures. Physicians will have to adjust themselves to this change, and there is no doubt, he says, that the day of "officialization" of physicians will be materially advanced thereby. Stier-Somlo asserts that the whole matter of sickness insurance should be taken over into the hands of the state, and its expenses should be met by a special tax for the purpose, declaring that the whole nation profits by improved conditions of public health, and the social insurance system has proved a school of hygienic living and of economics for all connected with it.

OUR TROOPS ON THE BORDER

Filipino as Hospital Director.—Governor General Harrison has named Assistant Director Dr. Fernando Calderos to succeed Dr. William E. Musgrave, resigned, as director of the Government Hospital, Manila.

Typhus at El Paso.—A case of typhus fever has been discovered in the state jail at El Paso and the case is believed to have originated in a Mexican house near the camp of the Thirty-Third Michigan Infantry. On account of this discovery, orders have been issued by General Kirk that no more laundry work shall be done for the men by Mexican women, that no Mexican shall be allowed in the camp and that men keep away from the Mexican homes.

New Ambulances for Army.—A medical board consisting of Maj. Robert E. Noble, Allie W. Williams, Percy L. Jones and Capt. Arthur C. Christie, M. C., U. S. Army, has approved the adoption of a new standard type of army ambulance and the organization of new ambulance company units. Each company has twelve motor ambulances and one three-fourths ton repair truck. Four of these companies have been organized and are in service along the southern frontier.

LONDON LETTER

London, Oct. 16, 1916.

The Insurance Act

The insurance act is, of course, largely on its trial. Signs of future trouble with the physicians are not wanting, and, as foreshadowed in previous letters to The Journal, important modifications are likely. But in consequence of the war, in which nearly half of the medical profession is engaged, the problem is left in abeyance. One of the difficulties, however, has come to a head. The immediate origin of the trouble is a new regulation issued by the insurance commissioners to the effect that when provision for medical services over and above those provided by the panel physician is made by any public authority after consultation with the local medical committee and after due notice, each panel physician shall take such steps as are necessary to enable the patient to take full advantage of such provision. This regulation implies that consultants and specialists may be appointed under the national insurance scheme, and that when they are appointed it will be the duty of panel physicians (1) to give to the expert all necessary information as to the patient's previous history and the physician's diagnosis and treatment; (2) to furnish a specimen for laboratory examination, and (3) to attend with the patient for consultation with the expert in certain cases. These new duties, for which extra payment has not been offered, are regarded as an imposition by many of the panel physicians. The new regulations have a further significance. They constitute the beginning of the revolution in the health administration of the country. It seems probable that an attempt will be made to link up with the insurance scheme the great general hospitals and the special hospitals for diseases of the eye, ear, nose and throat. A further development possible is a linking up of the insurance scheme with the great public health services. With the example of the army providing all medical services for a large fraction of our male population, it cannot any longer be contended that the prevention of disease and the cure of disease are separate questions. At present the physicians dealing with prevention and the physicians dealing with treatment in civil life are unrelated in an administrative sense. This absurdity is made clear by a single example—the treatment of tuberculosis. The great hope in this case is prevention; and as the patient himself is the source of infection, treatment and prevention become merely aspects of the same problem. There is a feeling in the public mind that a thoroughly efficient whole time medical service could be obtained at the cost of the present panel service, and there are many distinguished members of the profession who would welcome the change. As soon as the war ends, a large number of highly trained physicians will return to civil life; the present system, with its buying and selling of medical practices, affords them, unless they have private means, little hope of acquiring a competence in reasonable time. Yet it is scarcely to be doubted that they are capable, if given an opportunity, of lifting medical practice in this country to a higher level. It is evident that the insurance commissioners are looking ahead and viewing their great responsibilities in a serious frame of mind.

Falling Birth Rate: Lowest Figure for Scotland Since Registration

The sixty-first annual report of the registrar-general for Scotland, dealing with the year 1915, has just been issued. The number of births registered during the year totaled 114,181, this being the smallest number in any year since 1869. It is 12,363 less than the average of the preceding ten years, and is 19,344 less than that of 1903, in which year the largest annual number of births that had ever occurred in Scotland was recorded. The birth rate for 1915 was 23.86 per thousand, the smallest since the institution of national registration in 1855. It is 3.1 less than the mean of the birth rates of the preceding ten years. The births of illegitimate children numbered 7,875, and constituted 6.9 per cent. of the total births. The number is 1,157 less than the mean of those of the preceding ten years. Marriages registered during the year numbered 36,272, the largest number in any year since 1855, and 3,930 more than the average during the preceding ten years. The marriage rate was 7.58 per thousand, or 0.69 more than this average, and was higher than those of all years since 1855, with the exceptions of 1873 and 1874. As explained in previous letters, the increase is due to the war. The death rate was 17.06. Although 1.23 more than the mean, it is less than those of all years from 1855 to 1895. The infantile mortality rate of the year was high; it amounted to 126.5 per thousand births. It was 14.9 more than the ten year mean, and the highest since 1901. An additional table is incorporated in the report to show the effect of war conditions on the birth and marriage rates. This is tested by comparing the war time monthly rates with the means of four corresponding rates before the war. By this test it is found that there was a marked fall in the birth rate commencing nine months after the declaration of war, that is, in May, 1915, and continuing up to the end of 1915.

PARIS LETTER

Paris, Oct. 12, 1916.

The War

REORGANIZATION ON A NEW BASE OF HOSPITAL ARRANGEMENTS FOR THE SICK AND THE WOUNDED OF THE ARMY

The character of the present war has gradually introduced changes into the ideas which have heretofore reigned in all the services of the army. The health service of the army has not escaped from this influence. The system originally employed for the transport of the wounded and sick into the interior of the country, being designed for the requirements of an open war, very early showed that it left much to be desired from the point of view of maintaining the effectiveness of the army. It has been remarked that the wounded and the slightly sick, when sent so far from the front, remain much too long in the hospitals and afterward in the depots of their regiments, representing a very considerable loss to the forces. It was soon learned that it was important to avoid sending to the interior of the country those wounded and sick who were likely to be able to return to service after a short delay, and that these should, therefore, be kept close to the front. The result is that at present hospitalization in the zone of the armies is very much more important than that in the interior of the country. Indeed, many hospitals in the interior have been closed, while a great number of such institutions have been created in the army zone.

According to the new instructions, the sick and wounded of three categories should be maintained in the army zone. These are:

1. Those whose condition does not admit of transport to a great distance. (*a*) Those who must be kept where they are (moribund patients, patients with grave shock, tetanus, delirium, and those who have just undergone serious operation). (*b*) The seriously wounded whose condition permits transport to a short distance (a maximum of 20 kilometers [12½ miles]). Such are patients presenting penetrating wounds of the skull, of the chest and of the abdomen; fracture of the upper third of the femur; wounds of the knee joint by artillery projectiles or hand grenade; injury to the spinal cord. (*c*) Patients with contagious disease who must be isolated in the special hospitals in the army zone.

2. Men slightly wounded or slightly ill, who will probably be cured within four or five weeks.

3. The men "temporarily out of action" on account of fatigue, slight illness or unimportant accident.

The evacuation hospital (l'hôpital d'évacuation) is the essential sanitary formation. On it falls the duty of sorting and classing the sick and wounded. It retains those whose condition does not permit of their being transported, and evacuates the others either on the base hospitals of the army, or to the interior of the country. Those stations, even when placed near the first line in contact with the troops, have become during the present war a relatively stable formation, remaining in the same place for many weeks. They are not, therefore, summary, makeshift installations as in an open war. According to the latest instructions, every evacuation hospital should include a covered place for automobile ambulances; reception rooms; separate wards for the wounded who are obliged to remain in bed, for those who can sit up, and for the "temporarily out of action" who are awaiting their distribution; other wards for the wounded and sick who cannot be transported, and isolation wards for the contagious diseases. The large evacuation hospitals of the first line are required to have several operating rooms and dressing rooms. For the others, it suffices to have one operating room with two tables, and one large dressing room with several tables.

On the other hand, besides the sanitary formations for the reception of the untransportable sick and wounded, and the depots for the "temporarily out of action," orders have been given for the utmost development of the hospital resources of the army for the slightly sick and wounded, that is, for

those who are expected to become well within four or five weeks. It is laid down that the hospitals of this class should have a capacity of 2 per cent. of the army.

THE PHYSICOTHERAPIC CENTER OF THE GRAND PALAIS, PARIS

The physicotherapic annex for physical reeducation at the military hospital of the Grand Palais deserves to be known for its extensive and remarkable installation. It receives all those wounded who belong to the military governorate of Paris, and of the Third Region (Rouen), and it is certainly the center which treats the greatest number of wounded. The wounded arriving at Grand Palais pass first to the mensuration service where their injuries are examined and their condition determined by precise measurement. Thus, on the registration form are noted the length and circumference of the injured limb and of the whole limb; the angles of flexion and extension of the articulations; the electric excitability of the nerves and muscles, etc. The wounded then pass before the medical commission, which decides on the treatment to be applied. Each man receives a prescription slip; on the obverse of this are written the treatments, and on the reverse are spaces in which will be marked his attendance at the proper services. At fixed dates the man passes again before the mensuration service, which repeats the measurements already mentioned and notes them on the slip. He then goes to the medical commission, which, taking into consideration the effects of the treatment, prescribes its continuation or modification. At the end of their stay at the Grand Palais, the wounded are divided into two categories; those who are unfit to resume their service, and who are therefore sent away for convalescence or classed in the auxiliary service, or discharged from the army; and those who, being completely cured, are returned to their corps. The last receive a certain amount of drill in order to restore the habit of the use of arms and of military movements.

The number undergoing this treatment is frequently more than 2,200, 80 per cent. returning completely cured, or sufficiently so to enable them to return to the service. The incapacity measured at the time of entry averages 25.85 per cent., and on discharge 1.44 per cent.

Recently the Union of Foreign Colonies in France in favor of victims of the war has offered to the disabled workshops of every kind: tailoring, shoemaking, joinery, locksmith work, draftsmanship, accountancy (THE JOURNAL, July 22, 1916, p. 297).

Death of Jean-Joseph Picot

Dr. Jean-Joseph Picot, formerly professor of clinical medicine at the Faculté de médecine de Bordeaux, has just died at the age of 77. Born, Oct. 29, 1839, at Saint-Nicolas-du-Port (département de Meurthe-et-Moselle), Picot was educated at the Faculté de médecine de Strasbourg. After the war of 1870 he left Alsace and was appointed associate professor at the school of medicine at Tours. In 1878, at the time of the creation of the Faculté de médecine at Bordeaux, he was appointed professor of medical pathology (*pathologie médicale*). The following year he succeeded Gintrac in the chair of clinical medicine, which he occupied until his retirement. Since 1887, Picot was national correspondent of the Académie de médecine. He wrote a work entitled "Les Grands Processus Morbides" (pathology), which was crowned by the Académie des sciences (Prix Montyon) in 1877, and "Leçons de Clinique Medicale" in 1882.

Marriages

CHARLES TOWNSEND HAMAKER, M.D., Philadelphia, to Miss Margaret E. Morse of New York, at Beaver Falls, Pa., recently.

MARGARET CASTEX JONES, M.D., Goldsboro, N. C., to Samuel Booth Sturgis, M.D., of Philadelphia, July 6.

HOWARD BRADFORD BOONE, M.D., Chandlerville, Ill., to Miss Marguerite Potter of Decatur, Ill., October 27.

ISADORE H. FUHS, M.D., Canton, Ohio, to Mrs. Flora Luthie of Ashtabula, Ohio, at Cleveland, October 25.

DON RHODOLPH FLOWER, M.D., Tripoli, Wis., to Miss Clara Hirsch of Park Falls, Wis., October 19.

LANNES IRVING CONDIT, M.D., to Miss Gladys Lou Race, both of Detroit, October 28.

J. CLYDE MARKEL, M.D., to Miss Carolyn Owen, both of Pittsburgh, October 18.

Deaths

Edward William Schauffler, M.D., Kansas City, Mo.; College of Physicians and Surgeons in the City of New York, 1868; aged 77; a Fellow of the American Medical Association; president of the Missouri State Medical Society, 1878-1879; a fellow of the American Academy of Medicine and a member of the American Climatological Association; lieutenant, captain and adjutant of the One Hundred and Twenty-Seventh New York Volunteer Infantry, during the Civil War; clinical professor of internal medicine in the University of Kansas; one of the organizers of and a teacher in the Kansas City Medical College; a specialist on diseases of the lungs and heart; formerly a member of the state board of health and director of the Missouri State Sanatorium for Tuberculosis; died at his home, October 29, from heart disease.

Henry Kera Leake, M.D., Dallas, Texas; Kentucky School of Medicine, Louisville, 1869; aged 69; a member and once vice president of the State Medical Association of Texas, and president of the Dallas County Medical Society; professor of gynecology in the Southwestern University Medical College, Dallas; a Confederate veteran; for more than forty years a practitioner of Dallas, where he established the first private sanatorium; founder and editor of the *Texas Medical Record*; once president of the health board of Dallas; died at his home, October 29, from nephritis.

Edgar Alexander Mearns, M.D., Lieutenant-Colonel, M. C., U. S. Army (retired); College of Physicians and Surgeons in the City of New York, 1881; aged 60; a Fellow of the American Medical Association; who entered the army as assistant surgeon, Dec. 3, 1883, and after twenty-six years' service was retired with rank of lieutenant-colonel, Jan. 1, 1909, on account of disability in line of duty; who had devoted much time of late years to travel and the collection of zoologic specimens for the Smithsonian Institution, Washington; died at his home in Washington, D. C., November 1.

Phil C. Naumann, M.D., Burlington, Iowa; State University of Iowa, Iowa City, 1887; aged 55; president and medical director of the German-American Life Insurance Company of Iowa, Burlington; a member of the common council, 1894, and for two terms mayor of Burlington; a member of the board of trustees of the Burlington Hospital; died near his office, October 16, from cerebral hemorrhage.

Julius H. Eichberg, M.D., Cincinnati; Miami Medical College, Cincinnati, 1889; aged 57; a Fellow of the American Medical Association; formerly dean and professor of pharmacy in the Cincinnati College of Pharmacy; professor of materia medica and therapeutics in his alma mater; a specialist in diseases of the stomach; died in French Lick Springs, Ind., November 2, from heart disease.

Walter William Irving, M.D., Los Angeles; Hahnemann Medical College, Chicago, 1897; aged 49; formerly oculist and aurist to the Protestant Orphan Asylum, Milwaukee, Wis.; a specialist in diseases of the eye, ear, nose and throat; died in Los Angeles, October 13, from septicemia due to a wound of the finger, inflicted accidentally during a surgical operation, two months before.

Edward O. Plumbe, M.D., Chicago; Eclectic Medical College of the City of New York, 1868; New Orleans School of Medicine, 1869; aged 78; a veteran of the Civil War; formerly surgeon of the Chicago, Milwaukee and St. Paul Railway at Rock Valley, Iowa; acting assistant surgeon, U. S. Army, and U. S. P. H. and M. H. Service; died at his home, October 22.

Richard Frederick Winsor, M.D., Omaha; College of Physicians and Surgeons, Chicago, 1906; aged 35; formerly a Fellow of the American Medical Association and a member of the staff of the Peoria State Hospital, South Bartonville, Ill., from 1907 to 1912; instructor in pathology at Creighton Medical College; died at his home, Omaha, November 21, from pneumonia.

Merari Bunajah Stevens, M.D., Defiance, Ohio; University of Michigan, Ann Arbor, 1869; Bellevue Hospital Medical College, 1876; aged 73; a Fellow of the American Medical Association; one of the founders and for several terms the president of the Defiance County Medical Society; a veteran of the Civil War; died at his home, October 19, from heart disease.

Edward Sydney McKee, M.D., Cincinnati; Medical College of Ohio, Cincinnati, 1881; aged 58; a Fellow of the American

Medical Association and a well known obstetrician and gynecologist of Cincinnati; who had traveled extensively of late years; died in a hospital in Quito, Ecuador, South America, October 20, from malarial fever.

John Savile Lees, M.D., Norristown, Pa.; University of Pennsylvania, Philadelphia, 1863; aged 76; surgeon of U. S. Volunteers during the Civil War; who, after leaving the army, did not practice medicine, but was a woollen manufacturer; died at his home in Bridgeport, Norristown, October 9, from pneumonia.

William Lee McKibbin, M.D., Amaranth, Pa.; University of Pennsylvania, Philadelphia, 1869; aged 78; a veteran of the Civil War; formerly school director and overseer of the poor of McConnellsburg, Pa.; a practitioner of Fulton County for forty-seven years; died at his home, October 12, from injuries received by a fall.

Louis Chamberlain Purington, M.D., Boston; Hahnemann Medical College, Chicago, 1874; aged 71; a well known temperance worker and formerly national superintendent of the department of health and heredity of the National Woman's Christian Temperance Union; died at her home in Dorchester, Boston, October 26.

George W. Rightenour, Sheridan, Mont. (license, Montana, 1893); aged 77; a practitioner since 1862; a member of the Medical Association of Montana; once mayor of Sheridan; clerk of the school board for several years and for five years chairman; a veteran of the Civil War; died at his home, October 15.

John Campbell Spencer, M.D., San Francisco; College of Physicians and Surgeons in the City of New York, 1885; aged 55; a Fellow of the American Medical Association; a urologist and assistant professor of genito-urinary surgery in the University of California; died at his home, October 19.

George Lesser, M.D., Brooklyn; New York University, New York, 1897; aged 46; for many years a practitioner of the east side of Manhattan; director of the Jewish Maternity, Beth Israel and Mount Sinai hospitals and the Montefiore Home; died at his home, October 22, from asthma.

David N. McBride, M.D., Hillsboro, Ohio; Cincinnati College of Medicine and Surgery, 1868; aged 76; formerly a Fellow of the American Medical Association; a pioneer practitioner of Highland County, Ohio; died at his home, June 29, from arteriosclerosis.

Percy Guy Davis, M.D., Deerfield, Mass.; Baltimore Medical College, 1896; aged 49; a member of the Massachusetts Medical Society; for several years president of the Deerfield Village Improvement Society; died in his office, October 20, from heart disease.

William Jacob Coppernoll, M.D., Newark, N. Y.; University of Michigan, Ann Arbor, 1887; a Fellow of the American Medical Association and a specialist on diseases of the ear, nose and throat; died at the home of relatives in Laconia, N. Y., October 14.

Robert C. Westphal, M.D., Yorktown, Texas; Starling Medical College, Columbus, Ohio, 1902; aged 46; a Fellow of the American Medical Association; died in the Cuero (Texas) Hospital, October 21, after an operation for the removal of the right kidney.

Charles Westly Lester, M.D., Guthrie, Ky.; Vanderbilt University, Nashville, Tenn., 1880; aged 58; a Fellow of the American Medical Association and a prominent practitioner of Todd County; died at his home, October 11, from cerebral hemorrhage.

William R. Gladman, Tonganoxie, Kan. (license, Kansas, 1901); aged 68; a member of the Kansas Medical Society; a veteran of the Civil War and a practitioner for more than thirty years; died at his home, October 18, from malignant disease.

James Albert Cowan, M.D., New York; College of Physicians and Surgeons in the City of New York, 1904; aged 43; for ten years a member of the visiting staff of the Vanderbilt Clinic; died at his home, October 15, from cerebral hemorrhage.

George Henry Picard, M.D., New York; Cincinnati College of Medicine, 1877; aged 66; for many years editor-in-chief of a newspaper syndicate in New York; died in Roosevelt Hospital, New York, October 10, after a surgical operation.

William Heister Dukeman, M.D., Los Angeles; New York University, New York, 1880; aged 61; a specialist in abdominal surgery; died from heart disease, October 22, while driving his automobile, between Pasadena and Los Angeles.

Lewis A. Burck, M.D., Frederick, Md.; Southern Homeopathic Medical College, Baltimore, 1895; a member of the Medical and Chirurgical Faculty of Maryland; died in the City Hospital, Frederick, October 16, from cerebral hemorrhage.

William King Griffin, M.D., Marion, S. C.; University of Pennsylvania, Philadelphia, 1854; aged 85; also a pharmacist; for four years surgeon in the Confederate service during the Civil War; died at the home of his daughter, September 28.

Charles P. Bigelow, M.D., Grand Rapids, Mich.; College of Physicians and Surgeons, Baltimore, 1882; aged 92; a veteran of the Civil War; for many years a druggist; died in Blodgett Memorial Hospital, Grand Rapids, October 14.

David Francis Lincoln, M.D., Boston; Harvard Medical School, 1864; aged 75; acting assistant surgeon in the navy during the Civil War; at one time secretary of the American Social Science Association; died at his home, October 17.

Henry H. Whitaker, M.D., Hilliardston, N. C.; University of Maryland, Baltimore, 1883; aged 55; formerly a member of the Medical Society of the State of North Carolina; died at his home, October 12, from cerebral hemorrhage.

Sterling Barrows, M.D., Worthington, Mass.; College of Physicians and Surgeons in the City of New York, 1906; aged 36; a member of the Massachusetts Medical Society; died at his home, August 16, from tuberculosis.

Frances J. Bock, M.D., Lancaster, Wis.; Hahnemann Medical College, Chicago, 1906; aged 41; a member of the State Medical Society of Wisconsin; died, October 18, while on her way to New Mexico, in search of health.

Silas F. Roberts, M.D., Glencoe, Ohio; Kentucky School of Medicine, Louisville, 1895; aged 47; a member of the Ohio State Medical Association; was instantly killed by a train at a grade crossing in Glencoe, October 26.

David L. Howell, M.D., Big Rock, Tenn.; Vanderbilt University, Nashville, Tenn., 1877; aged 59; for one term a representative from Stewart County in the general assembly; died at his home, near Legate, October 17.

Joel Vinton Sampsell, M.D., Elyria, Ohio; Jefferson Medical College, 1877; aged 66; formerly a member of the Ohio State Medical Association; for forty years a practitioner of Elyria; died at his home, October 20.

William Lawrence Evans, M.D., St. Marys, Ont.; University of Toronto, 1915; lieutenant in the Canadian Army Medical Corps; was instantly killed while on duty at the western front in France, in August.

Edwin Henry Kertland, M.D., C.M., Toronto, Ont.; Queen's University, Kingston, Ont.; aged 91; one of the oldest practitioners of Ontario; died in the Toronto General Hospital, August 1, from senile myocarditis.

Adam Wendell Hubschmitt, M.D., New York; College of Physicians and Surgeons in the City of New York, 1900; aged 37; died in the New York Hospital, September 20, from atrophic cirrhosis of the liver.

Stanton Allen, M.D., Hood River, Ore.; College of Physicians and Surgeons in the City of New York, 1881; aged 57; for many years a practitioner of Milwaukee, Wis.; died at his home, about October 17.

Jacob N. Dennis, M.D., Hopkinsville, Ky.; Jefferson Medical College, 1860; aged 82; surgeon in the Confederate service throughout the Civil War; died at his home, October 18, from cerebral hemorrhage.

John Aaron Seapy, M.D., Geddes, S. D.; Bennett Medical College, Chicago, 1900; aged 42; a Fellow of the American Medical Association; died in St. Mary's Hospital, Rochester, Minn., about October 12.

James Bennett Gould, M.D., Minneapolis; Jefferson Medical College, 1886; aged 56; formerly a Fellow of the American Medical Association; died at his home, October 18, from cerebral hemorrhage.

James D. Wagner, M.D., Selma, Calif.; University of Nashville, Tenn., 1873; a member of the Medical Society of the State of California; aged 72; died at Long Beach, Calif., October 16.

Clarius Confucius Birney, M.D., Mason City, Iowa; Rush Medical College, 1874; aged 69; for many years a druggist of Mason City; died at his home, October 21, from nephritis.

Mathew John Mangan, M.D., Rutland, Vt.; University of Vermont, Burlington, 1905; formerly a member of the Vermont State Medical Society; died at his home, October 7.

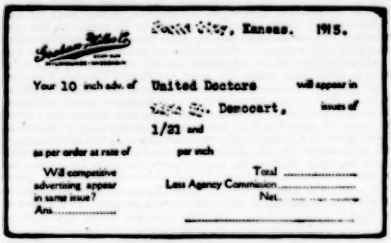
The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE ITINERANT "UNITED DOCTORS"

A Quack Organization Gets a Set-Back in Ohio

Many of our readers will remember that in 1913[1] THE JOURNAL published some articles dealing with a malodorous organization of quacks called the "United Doctors." The



Graham Miller Co.

[illegible], Kansas. 1913.

Your 10 inch adv. of United Doctors will appear in [illegible] issues of [illegible], Democart, 1/21 and

as per order at rate of per inch

Will competitive advertising appear in same issue? Ans.....

Total .....
Less Agency Commission .....
Net .....

The newspaper publisher who accepted the advertisements of the United Doctors was required to sign a card similar to this and return it to Manchester.

moving spirit of this concern was one Ben W. Kinsey. The various articles have been republished in a pamphlet "Medical Institutes"[2] and make an interesting, if sordid story.

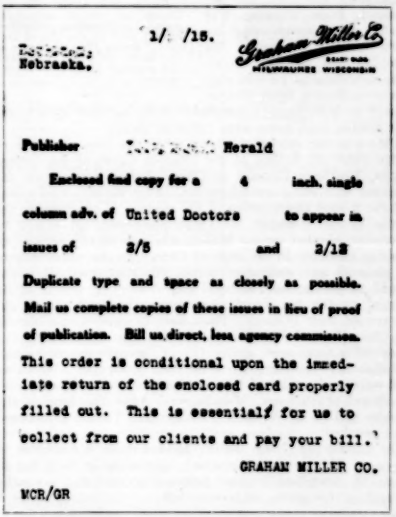
THE MANCHESTER ORGANIZATION

It now appears that there is still another organization that has been conducted under the name "United Doctors." The concern previously dealt with, while not staying very long at any one place, usually opened offices and made a pretense of becoming a permanent resident of the towns in which it operated. The later brand of "United Doctors" has been a one-day-stand affair, coming to country towns, after having liberally advertised their visit, and plying their trade in the rooms of the hotel at which they stayed.

The general manager of this outfit is one Burton Edgar Manchester, who also seems to have operated an advertising agency, under the name Graham-Miller Company[3] of Milwaukee, Wis., which "placed" the advertising for the "United Doctors." From our records, it appears that Manchester obtained a diploma from the Medical Department of the University of Buffalo in 1886. His disposition to wander seems pronounced. It appears that in 1886 he was in Buffalo; in 1890 and 1893 in Royalton, N. Y.; in 1900 in Syracuse, N. Y. In 1902 he had migrated to Crandon, Wis. Between 1904 and 1906 he seems to have been at Peshtigo, Wis., and Crystal Falls, Mich. In 1908, Menominee, Mich., was his place of abode, while in 1911 he had moved on to Green Bay, Wis., drifting from there to Milwaukee. Investigation has shown that Manchester's professional record at various places has been strictly in keeping with the class of business in which he is at present engaged. In December, 1915, Manchester was arrested in Kalamazoo, Mich., in connection with his activities as head of the United Doctors concern. The complaint against him was signed by Dr. Beverley D. Harison, secretary of the Michigan Board of Registration in Medicine. The case against him was *nolle prossed* by the prosecuting attorney when Manchester agreed to keep out of Michigan in the future.

THE OHIO CIRCUIT

During the past year Manchester has been "working" Ohio —and therein he showed poor judgment. Manchester's method was to hire men who, presumably, had the legal right to practice medicine in the states in which the "United Doctors" wanted to advertise and do business. The names of the physicians, of course, did not appear. The advertisements which were put out by Manchester through his "advertising agency" (!) notified the gullible that the "specialists" of the "United Doctors" would be in town on a certain date for



1/ /15.

[illegible], Nebraska.

Graham Miller Co. MILWAUKEE WISCONSIN

Publisher [illegible] Herald

Enclosed find copy for a 4 inch, single column adv. of United Doctors to appear in issues of 2/5 and 2/12

Duplicate type and space as closely as possible. Mail us complete copies of these issues in lieu of proof of publication. Bill us direct, less agency commission.

This order is conditional upon the immediate return of the enclosed card properly filled out. This is essential for us to collect from our clients and pay your bill.

GRAHAM MILLER CO.

MCR/GR

Photographic reproduction (reduced) of typical contract made with country newspapers by Manchester, *alias* United Doctors, *alias* Graham-Miller Co. "advertising agents!"

one day only and could be seen from 9 a. m. to 8 p. m. at the hotel named in the advertisement.

Manchester's contract with his hirelings was sometimes that of "fifty-fifty" on the net profits. Manchester prepared the itinerary, paid for the advertising, furnished the "report blanks" and also the drugs prescribed by his case-taker. The hireling doctors, on their part, were supposed to send in daily reports to the Milwaukee office, giving the name, address

1. The first article appeared in THE JOURNAL A. M. A. March 1, 1913; the second article, Aug. 9, 1913. News items also were published March 21, 1914, and April 25, 1914.

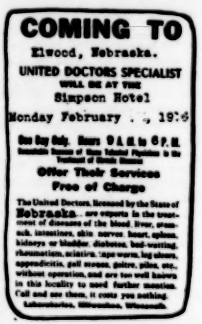
2. "Medical Institutes" is one of a series of pamphlets on the nostrum evil and quackery published by the American Medical Association, price 10 cents.

3. Some time ago Mr. A. C. Umbreit, attorney for the Wisconsin State Board of Medical Examiners, sent THE JOURNAL the following information regarding the Graham-Miller Company and its connection with the United Doctors: "With reference to the Graham-Miller Company, supposed to be the advertising agents of the United Doctors, this concern is unknown here. Their name does not appear in the telephone directory nor in the city directory. In looking up the address given upon the letter-head of this concern . . . I found such address to correspond to a small rear office in a small office building. There was not even a sign on the door, but the directory board of the building indicated the concern as occupying room No. 2, the name being given as Graham-Miller Company. The room referred to was occupied by a typewriter and its operator, some packages apparently containing medicines and other liquids and some papers and other nondescript matter. I made inquiries among reputable advertising agents here about this concern and none of them have ever heard of it. As to the supposed extensive laboratory of the United Doctors located at 531 E. Water St. I find that the place corresponding to this number is the ground floor of a small store building. The sign indicates that the space is occupied by the Gould Pharmacal Company, and it appears that one Paul Graw is proprietor of this concern. Apparently it is a small drug jobbing house. Nothing about the place indicated a laboratory of any size or description."

Later Mr. Umbreit wrote: "The Graham-Miller Company still has its headquarters in the Cary Bldg., a two-story office building on a side street. They apparently occupy four rooms and on the door of one of these rooms are written the words: 'United Doctors,' entrance through the office of the Graham-Miller Co. This name does not appear in the city directory nor in the telephone book."

and ailment of, and the financial capacity of, and prospect of fees from, the victims. After paying for the advertising and, presumably, the "advertising agency's" commission (Manchester being the "agency"), and paying also for the drugs (which Manchester furnished from an alleged laboratory in Milwaukee) and, in addition, paying the railroad and hotel expenses of the hireling, what was left from the daily intake was divided between Manchester and his employees, Manchester always getting at least half—frequently more.

For the "Ohio Circuit" Manchester hired two men, G. W. W. W. Walker and Theodore Jacobsen. Walker and Jacobsen, finding how easy the money came, apparently concluded that it was not worth while to split the profits with Manchester. After familiarizing themselves with the United Doctors brand of quackery, they started out "on their own," appropriating not only the trade name "United Doctors," but the style of advertising and follow-up letters, etc., used by Manchester.


COMING TO

Elwood, Nebraska.

UNITED DOCTORS SPECIALIST

WILL BE AT THE

Simpson Hotel

Monday February . , 191[illegible]

One Day Only. Hours 9 A. M. to 6 P. M.

Offer Their Services Free of Charge

The United Doctors, licensed by the State of Nebraska, are experts in the treatment of diseases of the blood, liver, stomach, intestines, skin nerves, heart, spleen, kidneys or bladder, diabetes, bed-wetting, rheumatism, sciatica, tape worm, leg ulcers, appendicitis, gall stones, goitre, piles, etc., without operation, and are too well known in this locality to need further mention. Call and see them, it costs you nothing.

Photographic reproduction (reduced) of typical advertising copy (of smaller advertisements) used by the United Doctors. Notice that the name of the hotel, date of visit, town and state are filled in on a typewriter.

WHEN QUACKS FALL OUT

This act of perfidy on the part of Jacobsen and Walker caused Burton E. Manchester to come "humbly complaining" into court, "praying" that Walker and Jacobsen shall be perpetually enjoined and restrained from stealing his "stuff" and appropriating his own private "swag." But Jacobsen and Walker, apparently unwilling to give up easy money without a fight, filed an answer to Manchester's complaint declaring that Manchester was coming into court with "unclean hands."

This was the status of affairs when the case came before Judge John M. Killits of the District Court of the United States, Northern District of Ohio. Before considering the question of issuing an injunction, Judge Killits, who seems to have a keen appreciation of the menace of quackery to the public health, directed the Ohio State Medical Board to determine whether or not Manchester was legally entitled to practice medicine in the state of Ohio. To the consternation of plaintiff and defendant alike, the state medical board served subpoenas on Jacobsen and Walker to appear at its meeting on October 3 and show cause why the board should not revoke their licenses. They were charged with violating the Ohio Medical Practice Act in that they were guilty (1) of splitting fees; were guilty (2) of "grossly unprofessional and dishonest conduct," based on their newspaper advertising and were guilty (3) of being connected professionally with an illegal practitioner, Manchester. After the hearing the licenses of Drs. G. W. W. W. Walker and Theodore Jacobsen were revoked.

On October 16, Judge Killits handed down his opinion in the case. This opinion is not only admirable in itself, but so succinctly describes the case before the court that we make no apology for giving it here in full:

JUDGE KILLITS' OPINION

"This is an action to restrain alleged unfair competition. The bill of complaint was filed on Sept. 5, 1916. An examination of the bill and its exhibit suggests very clearly that the defendants (assuming that the allegations are true) were violating whatever rights the complainant had in the premises, and, if the complainant's business were legitimate and entitled to the protection of the court, the case is one in which an injunction would clearly lie. We also note that, if complainant's business were illegitimate, his methods and manner of conducting it were shown to be so accurately copied by defendants that they could not complain of any restraint imposed by the court on their action. We therefore granted a temporary restraining order.

"The defendant filed a motion to the bill alleging that the complainant was seeking to protect an illegal business in the state of Ohio; that the complainant was in court with 'unclean' hands. The complainant thereupon filed a motion for leave to file an amended bill, and the matter is now before the court on the motion of the defendants to dismiss the case on the amended bill for the same grounds urged against the original pleading. The amended bill is permitted by the court to be filed on condition that the exhibits attached to the original bill are made part of the amended complaint.

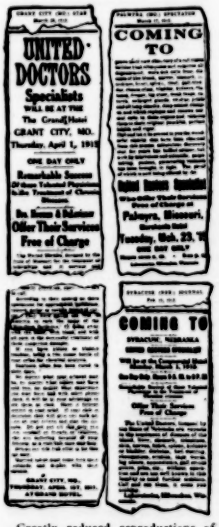
MAKING MILWAUKEE FAMOUS

"Complainant alleges therein that he is licensed to practice medicine in the states of New York and Wisconsin; that his citizenship is in the state of New York, but because of his business and calling he is temporarily a resident of the state of Wisconsin; that at Milwaukee he maintains laboratories for the manufacture and compounding and sale of drugs under the trade name of 'United Doctors.' He asserts that he has given special study and 'most of his attention to the subject of certain diseases and their treatment and the healing thereof'; that he has extended his business throughout many states by means of agreements with other physicians who were licensed and duly qualified by law to practice in the several states where their practice was carried on.

"Briefly, complainant carried on his business in the state of Ohio, being the business which he seeks to protect by his appeal to this court, by entering into contracts in writing with physicians qualified to practice medicine in the state of Ohio, by the terms of which contract these local physicians are to be advertised in the various newspapers and periodicals circulating within the state as 'United Doctors Specialists' who will visit selected places from time to time and meet the afflicted. It is their duty to consult with patients, diagnose cases, recommend medicines in consultation with the complainant, and suggest the purchase of the necessary remedies from complainant's laboratories in Milwaukee. Exhibits have been offered to the court showing special and confidential instructions to his physician agents by complainant, in which they are *especially enjoined to report to him the financial capacity* and disposition of the persons allured by the advertisements of the 'United Doctors,' and *the prospect for fees* therefrom, with recommendations as to amount of charges to be made in each instance. [All italics are ours.—Ed.]

A ONE HUNDRED THOUSAND DOLLAR BUSINESS

"The defendants, Jacobsen and Walker, were at one time employed by the complainant to pose as 'specialists' representing the 'United Doctors,' and to travel from advertised points to points within the state of Ohio. Contracts shown between the complainant and his local representatives, including defendants, disclose that the traveling 'specialists' were to receive a percentage of the profits of the business created by them, this percentage varying somewhat, as the exhibits show, according to the terms which the complainant is able to make with the respective hirelings. The complainant alleges that his business within the state of Ohio has exceeded in gross $100,000 in receipts in the last five years.


UNITED DOCTORS

Specialists

WILL BE AT THE

The Grand Hotel

GRANT CITY, MO.

Thursday, April 1, 1915

ONE DAY ONLY

Remarkable Success

Of those Talented Physicians

In the Treatment of Chronic Diseases

Dr. Brown & Associates

Offer Their Services

Free of Charge

COMING TO

Palmyra, Missouri,

Tuesday, Oct. 23, 1[illegible]

ONE DAY ONLY

COMING TO

SYRACUSE, NEBRASKA

Greatly reduced reproductions of characteristic advertisements of the United Doctors. Occasionally, as will be noted above, the names of the hireling physicians have been given. This, however, is unusual.

THE NEWSPAPERS' SHARE OF THE LOOT

"The bill further says that the advertisements published by complainant and under his authority 'have been worked out with great care and are the products of long experience of your orator in his method of doing business'; that complainant is the sole proprietor of the entire business carried on under the trade name and style of 'United Doctors,' and that he has spent within the state of Ohio the sum of $25,000 in advertising in country newspapers the business which he carries on under that name and through his representatives.

"The defendants, Jacobsen and Walker, after ceasing their contractual relationship with complainant in the early summer of the current year, seeing, doubtless, no legitimate reason why they should divide with their Milwaukee employer the profits of this business, concluded to work the people entirely to their own advantage, and, appropriating both the name and exactly the methods of their late principal, established an office in the city of Cleveland, styling themselves also 'United Doctors,' proceeding to advertise periodical trips to various country towns by copying in precise terms the advertisements which had heralded their approach when representing the complainant. One of these advertisements will suffice to illustrate the general manner of the business attempted to be carried on. It is that of defendants, but

with the exception of the hour and place and the last words, 'Laboratories, Cleveland, Ohio,' it is copied, wording and punctuation, from the advertising matter of the complainant which he had 'worked out with great care' and which he assures us 'are the products of long experience . . . in his method of doing business.' We quote from the Monroeville (Ohio) *Spectator*, Aug. 16, 1916, as follows:

COMING BACK

United Doctors Specialist Will Again Be at Bellevue, Ohio, Friday, August 25th, Hotel Bourdette

ONE DAY ONLY

Hours 9 A. M. to 8 P. M. Remarkable Success of These Talented Physicians in the Treatment of Chronic Diseases. Offer Services Free of Charge

The United Doctors Specialist licensed by the State of Ohio, for the treatment of all diseases including deformities, nervous and chronic diseases of men, women and children, offer to all who call on this trip, consultation, examination, advice free, making no charge whatever, except the actual cost of treatment. All that is asked in return for these valuable services is that every person treated will state the result obtained to their friends and thus prove to the sick and afflicted in every city and locality, that at last treatments have been discovered that are reasonably sure and certain in their effect.

The United Doctors are experts in the treatment of chronic diseases and so great and wonderful have been their results that in many cases it is hard to find the dividing line between skill and miracle.

Diseases of the stomach, intestines, liver, blood, skin, nerves, heart, spleen, rheumatism, sciatica, tape-worm, leg ulcer, weak lungs, and those afflicted with long-standing, deep seated, chronic diseases that have baffled the skill of the family physicians should not fail to call. Deafness often has been cured in sixty days.

According to their system no more operations for appendicitis, gall stones, tumors, goiter, piles, etc., as all cases accepted will be treated without operation or hypodermic injection, as they were among the first in America to earn the name of "Bloodless Surgeons," by doing away with the knife, with blood and with all pain in the successful treatment of these dangerous diseases.

No matter what your ailment may be, no matter what others may have told you, no matter what experience you may have had with other physicians, it will be to your advantage to see them at once. Have it forever settled in your mind. If your case is incurable they will give you such advice as may relieve and stay the disease. Do not put off this duty you owe yourself or friends or relatives who are suffering because of your sickness, as a visit at this time may help you.

Worn-out and run-down men or women, no matter what your ailment may be, call, it costs you nothing.

Remember, this free offer is for this visit only.

Married ladies come with their husbands and minors with their parents.

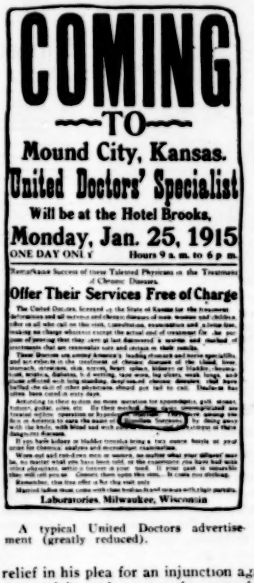
Laboratories, Cleveland, Ohio.

"Our attention is called by the defendants to Section 1275 of the General Code of Ohio as amended in 1915—105 Ohio Laws 178, to support their contention that plaintiff's (as well as their own) business is illegal in this state. This section provides that a license to practice medicine within the state of Ohio may be revoked by the state medical board for grossly unprofessional or dishonest conduct and by specific language of the statute, these words are declared to mean among other things, 'all advertising of medical practice in which extravagantly worded statements intended or having a tendency to deceive or defraud the public are made,' and also 'any division of fees or charges or any agreement or arrangement to share fees or charges made by any physician or surgeon with any other physician or surgeon or with any other person.'

DOG EAT DOG

"It is unnecessary to enlarge by argument on the propositions that *the advertisement quoted violates the spirit and letter of the section* to which we have referred, and that *the financial arrangement* between the complainant and his representatives *is likewise obnoxious to the statute*. These conclusions are too plain for extended discussion. Undoubtedly complainant's representative in this state 'split' fees with him. The advertisement which we quote is claimed by complainant as his very own; he puts it forth to the public as the statement of the qualifications of himself and his 'specialists'; one prominent grievance against defendants which he seeks to have alleviated by court action in his case is that they employ his language to claim for themselves the same miraculous powers which he ascribes to himself and his representatives in this advertisement. Yet he does not even pretend in his complaint that he has himself the comprehensive and profound professional qualifications which one would assume from this advertisement were enjoyed by the 'United Doctors.' He contents himself, as we have quoted elsewhere from the complaint, with affirming that he has made a special study and given much attention to 'certain chronic diseases,' whatever they may be; nor does he hint anywhere in his complaint that he employs representatives in this state who have anything more than the most ordinary medical qualifications. Apparently he did not dare to aver that he engages in behalf of sufferers allured by such advertising the medical skill which remotely measures up to the encomiums of this advertisement. *It*, as well as its fellows, we feel justified in saying, *is phrased in the language of a charlatan, of one who would prey on credulity born of suffering and weakness.* At least it must be the judgment of any intelligent and moderately informed person that complainant's advertising promises the impossible and is so extravagantly worded as to be considered deceptive, and, when we consider it in connection with the method by which he conducts his business in Ohio and with the fact of his personal irresponsibility as a nonresident of the state for malpractice, it seems very clear to this court that *we must regard that business to be essentially fraudulent and against public policy.*

"It is urged in his behalf that his business was established before the law in question was enacted in Ohio, and it is also somewhat naively suggested that we have nothing to do with the character of his business inasmuch as it may be legitimate elsewhere, but should protect his good-will and trade name in Ohio as a property right. This it seems to us is but begging the question. The validity of the Ohio act of 1915 has not been questioned and we are not disposed to question it. It is clearly in the interest of good faith and public welfare, and to enable one of the most deserving professions to be of the greatest possible service to people. The state at any time, in the interest of the welfare of its people, may legislate into illegality practices which theretofore were legal for want of legislative attention, and no rights in conflict with a reasonable exercise of the state's police power may ever be said to be vested.


COMING
—TO—
Mound City, Kansas.
United Doctors' Specialist
Will be at the Hotel Brooks,
Monday, Jan. 25, 1915
ONE DAY ONLY Hours 9 a. m. to 6 p. m.
Remarkable Success of these Talented Physicians in the Treatment of Chronic Diseases.
Offer Their Services Free of Charge
Laboratories, Milwaukee, Wisconsin

A typical United Doctors advertisement (greatly reduced).

INJUNCTION DENIED—COMPLAINANT PAYS COSTS

"What the complainant is asking the court to do is to protect him in the transaction of a business in this state which is reprobated by its laws; to permit him to make contracts with physicians in Ohio, the performance of which by them in this state would be to put them into opportunity as well as temptation to defraud, and which ought, by law, to result in the forfeiture of their right to practice medicine at all and to subject them to criminal prosecution. Of course no court of equity would ever stand for such a practice.

"There is no other disposition of this case possible to us than to dismiss the bill at the cost of the complainant."

Summed up, then, it seems that the United Doctors' brand of quackery is no longer to be tolerated in the state of Ohio. Manchester, the chief offender, is stamped as an undesirable by the courts and is denied relief in his plea for an injunction against Walker and Jacobsen, and is made to pay the cost of his appeal. The defendants in the case, Jacobsen and Walker, have had their licenses to practice medicine in Ohio revoked.

In addition to the forthright action of Judge Killits, no little credit for this public service devolves on Dr. George H. Matson, secretary of the Ohio State Medical Board, and Mr. G. V. Sheridan, executive secretary of the Ohio State Medical Association. Both of these gentlemen attended the second hearing of the Manchester case in Toledo and carefully investigated the court records showing the various counter charges. The case is discussed at some length in the October issue of the *Ohio State Medical Journal* which was published before the licenses of Jacobsen and Walker were revoked. In closing, the *Ohio State Medical Journal* well says:

"The state medical board is determined to press this case to the limit. There has been too much itinerant quackery in Ohio. The amendment to the law adopted by the last legislature materially strengthens the power of the board in

dealing with medical crooks. With this increased power, those who are familiar with the situation believe that it will now be possible to inaugurate a state wide campaign on traveling quacks and permanently separate them from the source of their 'easy' money.

"Hasten that day!"

preponderance is much greater in childhood than it is in adulthood." The German school statistics given by Rudolf Denhardt showing an average ratio of 3:1 may be used, for that is within Fletcher's range. Statistics seem not to be available for the sex ratio in adulthood, but the most agreement is probably on 9:1, which is also within Fletcher's range.

Jess Willard Says: "Take Nuxated Iron"
Nuxated Iron to Make New Age of Beautiful Women and Vigorous Iron Men
Iron as a Therapeutic Agent for that Stubborn Case of Anaemia or Mal-Nutrition
Nuxated Iron
SPECIAL OFFER TO PHYSICIANS
DAE HEALTH LABORATORIES

The *Medical Record* of New York has been carrying full page advertisements of "Nuxated Iron." One of these advertisements is here reproduced in miniature, with others of the same product, from the *Police Gazette*, newspapers, etc. Many of the better newspapers, and all respectable lay magazines refuse advertisements of such nostrums. The publishers of the *Medical Record* are not alone culpable. They are not physicians, they are business men, furnishing the medical profession what it—presumably—wants; or at least what it will tolerate. The blame for the disgracefully low advertising standards of many medical journals rests with those physicians who subscribe for, or contribute to, such journals, without protest.

Correspondence

The Outgrowing of Stammering

To the Editor:—If stammering—spasmodic, abortive speech—is outgrown, there is a natural remedy, and it ought not to be difficult to bring that remedy under control.

The divergence of opinion on the outgrowth of stammering is illustrated by the following quotations, which might be indefinitely continued:

"Children do not of themselves grow out of the affliction."—Dr. G. Hudson Makuen.

"I think one can safely say that there is no such thing as 'growing out' of stuttering."—John M. Fletcher.

"Arndt notes that some children that stutter get well without special treatment."—Edward Conradi.

"Occasionally, light grades disappear spontaneously during late childhood and adolescent life. . . . Experience does not prove, however, that a majority of children who are affected outgrow the difficulty."—Dr. Frank A. Bryant.

"There are approximately three times as many stammering children as stammering adults. Late in childhood or during adolescence many stammerers lose the impediment."—C. S. Bluemel.

Note that stammering is the subject under discussion in each quotation, although the words "stutter" and "stuttering" are used. The range of divergence is from no outgrowing to two-thirds outgrowing of the condition.

Fletcher does not believe in outgrowth; however, he says, "Estimates show that male stutterers preponderate over females in ratios ranging from 2:1 to 10:1. The male

The adopted figures, reduced to a comparable basis, show that where there are nine stammering schoolboys there are three stammering schoolgirls, and that where there are nine stammering men there is one stammering woman. How can we account for the disappearance of the two stammering schoolgirls?

There are three possible solutions:

1. Young men may have contracted stammering after school age. But we must abandon this, for it is generally admitted that the contraction subsequent to 12 years of age is negligible. Dr. Arthur Chervin says, "As a rule stammering appears in early childhood, from 3 to 7 years, sometimes a little later, but very rarely after the age of 10 or 12 years."

2. The young girls may die off more rapidly than the young men. This may be considered under two suppositions, namely, that among stammerers alone the girls die off much more rapidly, or that females in general die much more rapidly than males. The first supposition is untenable, for stammering is not a fatal disorder, and whatever fatality it might cause would apply to each sex. The second supposition—that females die more rapidly than males—is the reverse of the fact; for mortality tables show that the rate is higher among males.

3. The remaining solution is that the two girl stammerers recovered from their stammering. This must be accepted, for the other two solutions have been shown to be untenable.

Let those who really want to do something worthy in connection with stammering find out the means by which two thirds of the girl stammerers recover, and apply that means to the other stammerers, and there will be no more stammering in adult life. Ernest Tompkins, M.E., Los Angeles.

A New Needle for Suturing Purposes

To the Editor:—In THE JOURNAL, Oct. 21, 1916, p. 1228, Dr. William C. Speidel, Seattle, describes and illustrates "a new needle for suturing purposes" which has a central eye. Such a needle has been in general use in this country and England for several years, and was described and illustrated by P. P. Cole in the *Lancet*, London, Sept. 5, 1914, and is also described and illustrated in "Practical Medical Series," 1915, Volume II, p. 34.

WOODSON H. TAULBEE, M.D., Maysville, Ky.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WHAT IS PYORRHEA?

To the Editor:—Kindly advise me whether a physician and surgeon, regularly licensed under the Illinois law and thereby empowered to practice medicine and surgery in all their branches, requires a license as a dentist before he may treat pyorrhea alveolaris.

WILLIAM A. LURIE, M.D., Chicago.

ANSWER.—The Illinois medical practice act defines the practice of medicine as treating or professing to treat, operating on or prescribing for any physical ailment or any physical injury to or deformity of another. The Illinois dental law defines dentistry as treating or professing to treat any of the diseases or lesions of the human teeth or jaws, or extracting teeth, or preparing or filling cavities in human teeth, or correcting the malposition of teeth, or supplying artificial teeth as substitutes for natural teeth. Where is the dividing line between medicine and dentistry? In 1899, the Rhode Island supreme court (*State* v. *Beck*, 21 R. I. 288, 43 Atl. 366) held that a legally qualified physician could practice dentistry. The court said:

> Dentistry is now a well recognized branch of surgery. A dentist is a dental surgeon. He performs surgical operations on the teeth and jaw and as incidental thereto upon the flesh connected therewith. The sphere of operations, then, is included in the larger one of the physician and surgeon. A fair and reasonable construction of the two statutes taken together, therefore, comes to this, that the General Assembly . . . intended to except physicians and surgeons from the restrictions imposed on other persons regarding the practice of dentistry. . . . It has always been the custom in this state and probably everywhere else for physicians to treat ailing teeth, to extract teeth and to perform various other professional services which technically come under the purview of dentistry. . . . To now prohibit them from thus treating their patients would be . . . interference with their proper and legitimate functions.

In 1909, the Minnesota supreme court held (*State* v. *Taylor*, 106 Minn. 218, 118 N. W. 1012) that a person licensed to practice medicine and surgery cannot by virtue thereof practice dentistry without securing a license as a dentist. In this case, the defendant extracted teeth, took impressions in wax of the mouth and cavities, secured artificial teeth from dental laboratories and delivered them to patients. The court held that in the absence of any legislation to the contrary, a license to practice medicine and surgery would include dentistry, but that for reasons of public policy, the legislature had made a separate profession of dentistry. The acts of the defendant came clearly within the definition of dentistry. The legislature evidently intended to restrict the practice of the physician and surgeon and to require him, if he desires to practice dentistry, to obtain a license from the state board of dental examiners.

The question still remains whether pyorrhea is a purely local disease, involving only the teeth and gums, or whether it is a local evidence of a general and constitutional condition. Even if it is conceded that it is a purely local condition, is it a disease of the teeth or of the bone? If it is regarded as a disease of the bone, would the board of dental examiners take the position that all diseases of the jaw bone come exclusively within the realm of dentistry? If so, then the surgeon who treats a gunshot wound or a fracture of the jaw or who removes an osteosarcoma, or the rhinologist who drains an infected superior maxillary sinus, must first secure a license to practice dentistry. If the dental law forbids the physician to use local treatment for pyorrhea, does not the medical law prohibit the dentist from using general treatment for the same condition? Must the patient with pyorrhea have a dentist on one side for local treatment and a physician on the other to administer general treatment? This reduces the question to an absurdity. The right of the dentist under the Illinois statute to the extracting of teeth, the filling of cavities, the correction of malpositions and the supplying of artificial teeth will probably not be questioned. The controversy will center around that part of the statutory definition of dentistry which includes "treating any of the diseases or lesions of human teeth or jaws." If this is interpreted literally by the courts, it can only lead to confusion.

MENTAL DISTURBANCES DUE TO WAR

To the Editor: Please give a list of publications dealing with special or new forms of mental diseases arising from conditions at the front, or indirectly caused by economic war conditions in the different countries affected. S. N. A.

ANSWER.—The following is a list of references on this subject:

Claude, Dide, and Lejonne: War Psychoses, *Paris méd.*, Sept. 2, 1916.
Psychic Disturbances Incident to the War, Berlin Letter, THE JOURNAL, April 29, 1916, p. 1398.
Chavigny, P.: Psychiatry in the Active Army, *Paris méd.*, Jan. 1, 1916; abstr., THE JOURNAL, Feb. 12, 1916, p. 538.
Soukhanoff, S. A.: War Psychoses, *Russk. Vrach.*, 1915, xiv, No. 34.
Weygandt, W.: Psychiatry in War, *München. med. Wchnschr.*, Sept. 14, 1915; Mental Disease in War, ibid., Oct. 27, 1914.
Wittermann, E.: Psychiatry on the Firing Line, *München. med. Wchnschr.*, Aug. 24, 1915.
Emslie, I.: War and Psychiatry, *Edinburgh Med. Jour.*, May, 1915.
Oppenheim, H.: War Neurology, *Berl. klin. Wchnschr.*, Nov. 30, 1914; abstr., THE JOURNAL, Jan. 16, 1915, p. 280.
Bonhoeffer, K.: Psychiatry and War, *Deutsch. med. Wchnschr.*, Sept. 24, 1914; abstr., THE JOURNAL, Nov. 7, 1914, p. 1703.

CHYLURIA AND FILARIASIS

To the Editor:—Please give me information as to whether the lymphatic disease with chylous urine, attacks of pain in the muscles and fever due to filaria, which have been found in the blood taken at night in the case of a Cuban, is curable; also give the method of procedure with drugs to be used. I have heard that thymol is good for this purpose; others say that there is no drug of service—that change of climate is the only thing.

FLOYD BONESTEEL ENNIST, M.D., New York.

ANSWER.—The treatment of chyluria, according to Manson and others, is to send the patient to bed, elevate the pelvis, restrict the amount of food and fluid—especially fatty food—gentle purgation, and absolute rest. A day or two of this kind of treatment will probably be followed by temporary or prolonged cessation of the chyluria. Drug treatment of filariasis is uniformly disappointing. The drugs which have been recommended for the treatment of this disease are gallic acid in large doses, benzoic acid in large doses, glycerin, the tincture of ferric chlorid, decoction of mangrove bark, chromic acid, quinin, sodium salicylate, ichthyol, and *Nigella sativa*. It is not probable that these substances have any influence in stopping the lymphorrhagia, nor is it likely that thymol or methylene blue have any effect either on the filaria or on the disease it causes. Both drugs have been tried, but the results have not been satisfactory. It should not be forgotten that a filarious patient, for the protection of others, should sleep under a net, the varieties of mosquitoes capable of acting as intermediate hosts being numerous.

IODIN AS A DOUCHE FOR TEETH

To the Editor:—I have found marked benefit from the application of tincture of iodin, 5 per cent. solution, to the gums around the roots of the teeth. Do you know of any good substitute, as the iodin discolors the teeth? Please do not publish my name. W. F.

ANSWER.—Black, in his work on "Dental Pathology," recommends that the patient be taught to douche the gums twice daily with physiologic sodium chlorid solution. A rubber bulb syringe with a tolerably large nozzle is advised. This is to be held in such position that the stream will pass into and wash out the space between the edge of the gums and the teeth. In this way inflammation, which would otherwise result from accumulation of bacteria and their products, may be prevented. Black also states that more than half of all inflammations of the gums are due to slight traumatisms of various kinds, due to such causes as the lodgment of food between teeth, rough edges of fillings, crowns, etc.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, Nov. 14. Sec., Dr. T. J. Stout, Brinkley; Homeopathic, Little Rock, Nov. 13. Sec., Dr. Scott C. Runnels, 900 Scott St., Little Rock; Eclectic, Little Rock, Nov. 14. Sec., Dr. C. E. Laws, 712 Garrison Ave., Fort Smith.

CONNECTICUT: Regular, New Haven, Nov. 14-15. Sec., Charles A. Tuttle, 196 York St., New Haven; Homeopathic, New Haven, Nov. 14-15. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven; Eclectic, New Haven, Nov. 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

DELAWARE: Dover and Wilmington, Dec. 12-14. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA: Regular, Palatka, Dec. 5-6. Sec., Dr. E. W. Warren, Palatka.

KENTUCKY: Louisville, Dec. 11-13. Sec., Dr. A. T. McCormack, Bowling Green.

LOUISIANA: New Orleans, Nov. 30-Dec. 2. Sec., Dr. E. L. Leckert, 716 Macheca Bldg., New Orleans.

MAINE: Portland, Nov. 14-15. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MARYLAND: Regular, Baltimore, Dec. 12. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

MASSACHUSETTS: Boston, Nov. 14-16. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

MISSOURI: St. Louis, Dec. 11-13. Sec., Dr. J. A. B. Adcock, Jefferson City.

NEW HAMPSHIRE: Concord, Dec. 18-19. Sec., Dr. W. T. Crosby, Beacon Bldg., Manchester.

OHIO: Columbus, Dec. 5-7. Sec., Dr. Geo. H. Matson, State House, Columbus.

RHODE ISLAND: Providence, Nov. 15-16. Sec., Dr. Gardner S. Swarts, 70 Waterman St., Providence.

SOUTH CAROLINA: Columbia, Nov. 14. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Fort Worth, Nov. 14-16. Sec., Dr. J. S. McCelvey, Temple State Bank Bldg., Temple.

VIRGINIA: Richmond, Dec. 15-18. Sec., Dr. J. N. Barney, Fredericksburg.

WEST VIRGINIA: Parkersburg, Nov. 14. Sec., Dr. S. L. Jepson, State Health Commissioner, Charleston.

Wyoming June Report

Dr. H. E. McCullum, secretary of the Wyoming State Board of Medical Examiners, reports the written examination held at Laramie, June 14-16, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 8, including 1 osteopath, all of whom passed. Five candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Arkansas		(1909)	84
Denver and Gross College of Medicine		(1905)	77.7
University of Colorado		(1916)	82.9
University of Louisville	(1912) 85.8;	(1916)	79.9
John A. Creighton Medical College		(1915)	83.8
Trinity Medical College		(1904)	91.3

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado		(1912)	Utah
Hahnemann Medical College and Hospital, Chicago		(1905)	Illinois
Rush Medical College		(1910)	Utah
John A. Creighton Medical College		(1901)	Iowa
Dallas Medical College		1903)	Illinois

Indiana July Report

Dr. W. T. Gott, secretary of the Indiana State Board of Medical Registration and Examination, reports the written examination held at Indianapolis, July 11-13, 1916. The total number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 45, of whom 42 passed, including 2 osteopaths, and 3 failed. Thirteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Med. and Surg.	(1914) 94.1;	(1916)	89.8, 92.2
Rush Medical College		(1916)	89.9
Indiana University	(1916) 87.4, 88.2, 88.5, 88.8, 89.1, 89.7, 89.8, 90, 90, 90.6, 90.6, 90.6, 90.6, 91, 91, 91, 91.1, 91.4, 91.6, 91.9, 92.6, 92.6, 92.6, 93.1, 94.4, 94.7, 94.9.		89.5, 89.6, 89.6,
Harvard University		(1913)	94.7
St. Louis University	(1912) 89.7;	(1916)	92.8
University of Vermont		(1915)	87.1
Marquette University		(1916)	93.5
University of Toronto		(1911)	93.1
	FAILED		
Indiana University		(1916)	* *
Vanderbilt University		(1915)	* *

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Bennett Medical College		(1913)	Illinois
Hahnemann Med. Coll. and Hosp., Chicago		(1914)	Illinois
Northwestern University		(1909)	Illinois
University of Illinois		(1913)	(1914) Illinois
Medical College of Indiana		(1885)	Nebraska
Kentucky School of Medicine		(1898)	Kentucky
University of Louisville		(1910)	(1912) Kentucky
University of Michigan Medical School		(1882)	Michigan
Jefferson Medical College		(1910)	Penna.
University of the South		(1899)	New York
Vanderbilt University		(1913)	Tennessee

* No grade given.

Book Notices

A TEXT-BOOK OF FRACTURES AND DISLOCATIONS: With Special Reference to Their Pathology, Diagnosis and Treatment. By Kellogg Speed, S.B., M.D., F.A.C.S., Associate in Surgery, Northwestern University Medical School. Cloth. Price, $6 net. Pp. 888, with 656 illustrations. Philadelphia: Lea & Febiger, 1916.

The clinical and statistical material in this book is taken largely from the voluminous service of Cook County Hospital, Chicago. In the earlier chapters, the regeneration of bone, and repair, etiology and mechanism, pathology, complications and sequelae of fractures are fully discussed. The immediate, nonoperative and operative treatment are described, and special consideration is given to the internal bone splinting both in recent and in old ununited fractures. The general considerations of dislocations are much more briefly considered. Skull and face fractures are well illustrated by tracings of roentgenograms and photographs and sketches particularly of the methods of fixation of the jaw fragments. The chapters on fractures of the lower end of the humerus and dislocations of the elbow are among the best. The newer studies on fractures and dislocations of the carpal bones are well reviewed and illustrated. The chapter on the operative treatment of fractures of the femur is particularly full. The varieties of fractures about the ankle joint and of the os calcis are minutely considered. On the whole, the illustrations of fractures of the lower extremities are much better and more numerous than are those of the dislocations. Numerous photographs of special therapeutic appliances and of pathologic specimens are included among the illustrations.

OBSTETRICS, NORMAL AND OPERATIVE. By George Peaslee Shears, B.S., M.D., Professor of Obstetrics, New York Polyclinic Medical School. Cloth. Price, $6. Pp. 745, with 419 illustrations. Philadelphia: J. B. Lippincott Company, 1916.

In presenting a new volume on obstetrics, a field already crowded, the author has endeavored to omit the irrelevant matter and confine emphasis to the practice of obstetrics. For this reason the book is admirably adapted to the practitioner of medicine, the man who does not have at his disposal the facilities of a hospital. Whether such a work is well suited to the student is a question fairly debatable. The author has felt that too many "texts" are constructed on a plan which does not conserve the interests of either the practitioner or the student. Therefore the theory of pure obstetrics has been emphasized and amplified, while the traditional sections on embryology, placentation and anatomy have been omitted. As evidence of the practical nature of the volume, the author goes into considerable detail in his chapter on the management of labor. He prefers the "superior safety of ether," while stating that women in labor enjoy a remarkable degree of immunity from the toxic effects of chloroform. He has not found "twilight sleep" injurious to the mother, and describes a modification of the Freiburg method. Two small doses of scopolamin and morphin are employed, with ether during the second stage. The use of nitrous oxid analgesia in labor is not mentioned. In many respects the author's methods cannot be too highly commended. Thus the technic described for the induction of labor by the use of rubber bags, or that of vaginal cesarean section, is admirable, clear, concise, and reveals expert workmanship. In forceps extraction the Tarnier axis traction instrument is employed, the traction apparatus being removed as soon as the fetal head has been brought down to the perineum, actual delivery being accomplished with the application handles. The illustrations are abundant and to the point.

Medicolegal

Marriage Not Annulled for Epilepsy

(Elser vs. Elser (N. Y.), 160 N. Y. Supp. 724)

The Supreme Court of New York, Special Term, Bronx County, per Justice Mullan, says: The husband sues to annul the marriage on the grounds (1) that the defendant was physically incapable, etc., and (2) that he was induced to enter into the marriage contract by her fraud in concealing from him that she was an epileptic, and in leading him to believe, through statements to that effect, that she was in good health. It was proved, even conceded, that the defendant was, at the time of the marriage, and has been ever since, afflicted with the disease known as epilepsy. As to the first ground urged, it was shown that the exercise of the matrimonial function induced on the part of the wife paroxysms or convulsions symptomatic of her disease, and that this made copulation abhorrent to her and unsatisfactory to him, and thus lessened its frequency; but, as copulation was possible, no more need be said on that subject. As to the charge of fraud, the court finds there was none. The court had a physician called to examine the wife, and he testified that the statistics show that in about 16 per cent. of the epileptic cases covered by the records from which the statistics were compiled the taint was inherited. The plaintiff's counsel urges that public policy requires an annulment decree in order to prevent the coming into the world of progeny tainted by an epileptic strain, but we have not as yet come to that refinement of civilization. Complaint dismissed, without costs.

Medical Practice Act and Diagnosis

(People vs. Jordan (Calif.), 156 Pac. R. 451)

The Supreme Court of California, in affirming a conviction of the defendant of having engaged in the practice of a system or mode of treating the sick and afflicted without having a certificate authorizing him so to do, holds that the objection was without merit that the title of the act under which the defendant was prosecuted (statutes of 1913, page 722) is not sufficient in its expression of the purposes declared in the body of the act itself. Nor does the court agree with the contention that the act violates certain constitutional provisions in that it is discriminatory in exempting from its provisions a certain class of drugless practitioners, namely, those who resort to prayer as a means of treating persons afflicted with bodily ills. The court says that it was argued that the act is discriminatory because the prohibitory words thereof make it unlawful for any one of those who fall within its description to "diagnose" disease. It was said that to "diagnose" disease does not necessarily involve an intention on the part of the diagnostician either to treat the afflicted person or to prescribe for him in any way, and that to require no diagnosis from those who profess to treat disease by prayer while prohibiting all other unlicensed persons from diagnosing various ailments is an unjust and unconstitutional regulation, favoring one class of citizens unduly. This whole argument rests on a misconception of the meaning of the term "diagnose." As used in pathology the word means "to determine the diagnosis of; to ascertain, as a disease from its symptoms" (Century Dictionary); it means "the recognition of a disease from its symptoms." Diagnosis is as much a part of the practice of medicine as is the administration of remedies, and it is a vastly more important branch thereof because, generally speaking, the treatment of disease is governed by the practitioner's theory regarding its cause. Intelligent treatment may follow only correct diagnosis. It was argued that diagnosis is merely "guessing," but that is only partially true. It is a matter of common knowledge that in the present development of microscopy, chemistry, bacteriology, radiography and kindred sciences there are some diseases which may be detected with absolute certainty by the accomplished diagnostician. But even where it depends partly on conjecture, real diagnosis is the product of knowledge and experience. The Supreme Court of the United States has declared diagnosis to be a part of the practice of the healing art, even in systems of treatment which do not deal with administration of remedies, but with mechanical adjustment of parts of the human body (*Collins vs. Texas*, 223 U. S. 288). It is impossible to dissociate diagnosis from the practice of the art of healing by any physical, medical, mechanical, hygienic or surgical means. It is competent, therefore, for the legislature to permit only those persons who are proficient and who have been found to be educated up to certain standards to "diagnose" ailments. The objection that those who profess to treat bodily afflictions by prayer are not required to be proficient in diagnosis, and that their exemption, under the law, is the extension of a favor to them which is withheld from others is met by the obvious answer that diagnosis is no part of such treatment. Those who believe that divine power may be invoked by prayer for the healing of the body believe also that God is all-powerful. Patients receiving their ministrations know this, and therefore no fraud or injury may be practiced on such persons by reason of any lack of skill by the healers in determining the nature of the diseases to be treated. But those who elect to depend on some other system of treatment have a right to protection by the state from the ministrations of unskilful, uneducated persons. In other words, the right to practice medicine should carry with it some assurance to the public that the licensed practitioner possesses reasonable proficiency in the technic of his profession.

Society Proceedings

COMING MEETINGS

American Academy of Ophthal. and Oto-Laryn., Memphis, Dec. 11-13.
American Association of Anatomists, New York, Dec. 27-29.
Medical Association of the Isthmian Canal Zone, Ancon, Dec. 16.
Society of American Bacteriologists, New Haven, Conn., Dec. 26.
Southern Medical Association, Atlanta, Nov. 13-16.
South. Surg. and Gynec. Assn., White Sulphur Spgs., W. Va., Dec. 11-13.
Western Surgical Association, St. Paul, Dec. 15-16.

AMERICAN ROENTGEN-RAY SOCIETY

Seventeenth Annual Meeting, held at Chicago, Sept. 27-30, 1916

(Continued from page 1393)

Roentgen Appearances of Osteomyelitis

DR. ROLAND HAMMOND, Providence, R. I.: A localized, definitely circumscribed area of increased radiability occurring in the juxta-epiphyseal portion of the bone in children is commonly known as Brodie's abscess. It is oval in shape, has a clear-cut bony wall, and is most often seen at the upper end of the ulna or the tibia. The Roentgen appearance would suggest a cyst; but the pain, localized tenderness, limitation of joint motion and elevation of temperature are more marked than usually obtains in a case of simple bone cyst. While the Roentgen appearance of pyogenic osteomyelitis is fairly typical in the ordinary case, it is likely at times to be confused with certain stages of tuberculosis and syphilis. It may be necessary to settle the question by laboratory tests or the histologic examination of the bone in question in order definitely to settle the diagnosis.

Roentgen Diagnosis of Metastatic Malignant Bone Disease

DR. GEORGE E. PFAHLER, Philadelphia: Metastatic carcinoma involving bone is much more frequent than is generally recognized, and probably in the advanced cases occurs in nearly 20 per cent. The metastasis to the spinal column takes place most frequently from mammary carcinoma in women, or prostatic carcinoma in man, and next to these probably the carcinomas of the stomach and the thyroid lead to spinal metastases. Rheumatic pains occurring in the growth of malignant disease should always make us think of metastatic carcinoma in the spinal column, and demand a thorough Roentgen study. The recognition of metastatic carcinoma of the spinal column or other bones makes a very bad prognosis, but not absolutely hopeless, and there may

still be a considerable prolongation of life with hope and comfort even after the disease has become very extensive. A healing process has been shown by me in metastatic carcinoma of bone.

Renal and Ureteral Stone Symptoms in Spondylitis Deformans

DR. E. BLAINE, Chicago: The frequent Roentgen-ray finding, after careful and proper examination, of "no shadows indicating renal or ureteral stone" leads to a search for the cause of the patient's symptoms. The symptoms are usually more or less characteristic of stone, particularly the sharp pain which occurs intermittently. A series of fifty-nine cases were reviewed and the study of the findings reveals a high percentage of bone changes involving the lower spine at or near the kidney regions. These changes range from a mild hypertrophic spondylitis to a high grade bone increase, resulting in "bridging" and local erosions of the articular surfaces of the vertebral bodies. These findings, in the absence of stone shadows, suggest very strongly the cause of the symptoms which lead one to suspect lithiasis, but which evidently are due to spondylitis.

DISCUSSION ON ROENTGENOGRAPHY IN DISEASES OF THE BONE

DR. JOHN L. PORTER, Chicago: Patients with tuberculosis of the spine have been operated on for stone in the bladder and for appendicitis, the pain having been referred. Facts are brought out in the roentgenogram which cannot be explained without clinical findings and the history. I think the roentgenologist should know something about the case, its clinical history and the findings, so that he can make a better interpretation of the roentgenogram.

DR. H. E. POTTER, Chicago: If the clinical symptoms are positive for osteomyelitis, no time should be lost in urging operation. A surgeon should not be kept waiting for positive Roentgen findings in acute osteomyelitis. When the disease is advanced and a definite pathologic condition shows in the bone, it will appear in the roentgenogram.

DR. H. K. PANCOAST, Philadelphia: Acute osteomyelitis or acute epiphysitis cannot be diagnosed by means of the Roentgen ray; that is, in the early stages of the disease. It has been my custom to impress on my students the fact that the patient should be operated on before the Roentgen diagnosis is possible.

DR. A. B. MOORE, Rochester, Minn.: Many metastatic cancer patients have no symptoms except perhaps some pain. Nothing in medicine is so deceptive as a so-called kidney history, and often the urinalysis may be negative and the Roentgen examination negative, even though there may be pathologic changes in the kidney. Pyelography and pyeloscopy are also of great help in making a diagnosis.

DR. L. G. COLE, New York: I recall making negative plates of bones in which osteomyelitis was suspected to be present, but with added experience I learned to interpret that finding correctly.

DR. E. BLAINE, Chicago: In cases of acute osteomyelitis I always state that the Roentgen ray does not show any change in the bone during the first few days of the disease, and therefore the Roentgen findings should not be considered one way or the other. Operative intervention should not be delayed. It is astonishing how many cases of metastatic carcinoma of bones show no symptoms whatever.

Pathologic Reasons for Legitimate Errors in the Roentgen Diagnosis of Gastric Carcinoma and Ulcer

DR. W. C. MACCARTY, Rochester, Minn.: The pathologic reasons for the legitimate errors in Roentgen diagnosis of gastric ulcer and gastric carcinoma seem to be the following: There is no macroscopic differentiating structural difference between a single chronic gastric ulcer and an early carcinomatous chronic gastric ulcer. There is no differentiating variation in muscular structure which might be the basis of diagnostic difference in gastric rhythm in simple chronic gastric ulcer and an early carcinomatous chronic gastric ulcer. The diagnosis of early carcinoma in the border of a chronic gastric ulcer is a question of the position of a few undifferentiated epithelial cells in the mucosa or submucosa, and it still remains an open question whether or not Roentgen rays can differentiate such small quantities of such cells from normally differentiated epithelial cells or the cells of the other tissues in a chronic ulcer.

Diagnosis of Syphilis of the Stomach

DR. L. T. LEWALD, New York: It is a rare manifestation of syphilis, congenital or acquired, occurring mostly in males, especially in the fourth and fifth decades, but also at almost any age. Its pathology is characterized by (1) multiplicity of lesions in many organs, and (2) by variety and plurality of lesions in the stomach itself. Its symptomatology corresponds to the pathologic findings; it presents no unanimity of symptoms. There are four symptoms which are, however, fairly common, singly or combined. These are pain, especially immediately after eating, emaciation, tenderness and hemorrhage. If there is a clear history of syphilis, or if the Wassermann test is positive, the diagnosis should be comparatively simple.

Indications for Surgical Intervention in Gastro-Intestinal Cases

DR. L. G. COLE, New York: Approximately one half of the cases of gastric cancer that I have examined have been inoperable, and the Roentgen evidence before operation indicated beyond a doubt that the case was inoperable. In only about 75 per cent. of the operable cases which are proved to be malignant at the time of operation can anything more than a palliative gastro-enterostomy be performed, and in many of these cases the desired palliation is not obtained. Nevertheless, this operation is justifiable even if the desired relief should not follow. This leaves 25 per cent. of the operable cases (only 12 per cent. of the total number of gastric cancers) in which there is any hope for surgical cure by resection of part of the stomach or by pylorectomy. In 70 per cent. of these cases in which an attempt was made to remove the growth, the patient died before leaving the hospital. Postpyloric ulcers with deep, penetrating, bullet-like craters with thick edges require surgical procedure. When the induration has transgressed the pyloric sphincter and causes secondary involvement of the pars pylorica, surgical procedure may be indicated to prevent malignancy. In such cases a pylorectomy, not a gastro-enterostomy, is indicated.

Roentgen Studies of the Pelvic Colon and Rectum

DR. J. T. CASE, Battle Creek, Mich.: That portion of the colon which has a long mesocolon should be freely movable. Adhesions of the pelvic colon which interfere with its free mobility are vicious, and when associated with other clinical symptoms may require surgery. The mere presence of adhesions is not a surgical indication. Adhesions must disturb the function. In most cases of pelvic colon obstruction, the symptoms are chiefly referred to the neighborhood of the cecum and ascending colon through increase of the normal antiperistaltic influence. Rectal constipation is a common finding. It may be due to adhesions near the pelvirectal junction, to any acute inflammatory rectal condition, such as prostatitis, hemorrhoids, rectal ulcer, or in other cases to atony of the rectal walls. Proctoscopic examination is needed to differentiate. In syphilis of the rectum the filling defect is smooth-edged and extensive, converting the shadow of the rectal ampulla into a long, narrow, smooth-edged tube, as contrasted with carcinoma, which produces an irregular filling defect, not involving the rectum so extensively in a longitudinal direction.

DISCUSSION ON ROENTGENOGRAPHY IN DISEASES OF THE STOMACH

DR. E. H. SKINNER, Kansas City, Mo.: If I had a carcinoma of the stomach, I would be operated on irrespective of the Roentgen findings. I should want some one to see that tumor and then pass judgment.

DR. GEORGE C. JOHNSTON, Pittsburgh: When the roentgenogram apparently shows a carcinoma of the stomach, look at the patient. If it is a case of syphilis, you will find that he

does not look sick. If it is carcinoma, he will surely show some evidence of cachexia. Make a Wassermann test, and if it is syphilis the test will be positive. That is the way I make the diagnosis. In every case of malignant disease of the stomach in which I have reason to believe that there still remains sufficient gastric wall for the surgeon to do a gastroenterostomy, I insist on having the operation done.

(To be continued)

THE MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixty-Sixth Annual Meeting, held at Scranton, Sept. 18-21, 1916

(Continued from page 1396)

Treatment of Compound Fractures

DR. JONATHAN M. WAINWRIGHT, Scranton: The main problems presented by compound fractures are to prevent or cure infection and to procure and maintain satisfactory reduction. Researches in the armies in Europe have shown that Dakin's hypochlorous acid solution is most effective in the treatment of infected fractures, and that the retentive fracture dressings must be such as to permit access to the wound for the purpose of dressing. As regards drainage, we must accept the teaching of Moynihan, that there "never yet was such a thing as a gauze drain." I believe that the fixation methods will narrow down to three: open operation and suture of the fragments by kangaroo tendon, the Albee sliding graft, or extension by the Steinman pin.

DISCUSSION

DR. JOHN B. LOWMAN, Johnstown: The success of the treatment of compound fracture lies in the primary dressing. Too much is done in the way of first aid. Convert the compound into a simple fracture before attempting any method of operation. Wipe off all the foreign material you can, paint with iodin, and put on the dressing. Our percentage of infections has become very low. A plate should not be put on a compound fracture.

DR. WILLIAM L. ESTES, South Bethlehem: The indication in the compound fracture is, first, to provide for as nearly absolute drainage as possible. If the fluids which develop are dammed up, they will press on the blood vessels, and a thrombus develops, and, if it continues, a necrosis. The indication is to relieve that pressure as soon as possible and to prevent it. Remember that gauze is not a drain. I am not quite in accord with the dictum that metallic plates should not be used. I use them with the greatest satisfaction. I do not believe that absolute immobilization is necessary for union in fracture. I have seen delayed union caused from immobilization.

DR. EDWARD MARTIN, Philadelphia: As a rule, a fracture unites in inverse proportion to the traumatism which has been inflicted. The greater the traumatism and the larger the exudate, the slower the union. There seems to be almost no constitutional condition which will either delay or interfere with union. We have had best results in cases of delayed union by the Bier condenser and by the simple common sense expedient of changing the treatment. Except in the operative cases we are not greatly troubled with nonunion or greatly delayed union. In every case of fracture in which operation is performed, whether by kangaroo tendon, bone plates, pins, pegs, staples, screws or what not, unless there is some delay in union and the delay is proportionate to the traumatism inflicted on the end of the bone, we are to some extent led from the ideal of apposition.

DR. G. F. BELL, Williamsport: In the large majority of cases, infection is due to the fact that the surgeon goes into the operative field before proper aseptic preparations have been made.

Abnormal Coagulation Time of the Blood, and Methods of Overcoming It

DR. G. M. DORRANCE, Philadelphia: Normal blood coagulates within fairly well defined limits. The factors concerned in normal coagulation of the blood are kinase, calcium, prothrombin, thrombin, fibrinogen, and fibrin. Kinase plus calcium plus prothrombin equals thrombin. Thrombin plus fibrinogen equals fibrin. Kinase and calcium are found in the cellular elements of the blood and all the tissues. Prothrombin is derived from placques and white blood cells, but its origin is unknown. Fibrinogen is derived chiefly from the liver. Any disturbance of these elements causes a change in the clotting time. Medication has little or no influence in changing the clotting time of normal blood. In all cases in which the coagulation time is lengthened, we must find the cause and attempt to correct the deficient element; for instance, if it is due to a lessened amount of calcium, we supply it; if due to any of the other elements, it is best remedied by the use of serum or transfusion. We should determine the coagulation time in all suspicious cases before doing any operative procedures.

DISCUSSION

DR. ERNEST LAPLACE, Philadelphia: In certain cases as long as eight or ten minutes are required for coagulation, and my rule has been to try to bring it down to three or four minutes before I thought it was quite safe to operate.

DR. G. M. DORRANCE, Philadelphia: Coagulation time in six minutes is perfectly satisfactory to us in certain instances. You have to qualify with what instruments you are using.

Tuberculous Abscesses

DR. CHARLES W. DELANEY, Altoona: Tuberculous abscesses should not be opened and drained. A mixed infection is immediately implanted, which sooner or later destroys life or causes a state of invalidism. Tuberculosis as a single infection never kills; it is the mixed infection, which produces pathologic changes in the internal viscera. Tuberculous abscesses should be aspirated and injected with a modifying solution under the most rigid aseptic operative technic. The technic of Calot in our hands has proved by far the most satisfactory of all methods. The formula of Calot's solution is: olive oil, 70 gm.; ether, 30 gm.; creosote, 5 gm.; guaiacol, 1 gm., and iodoform, 10 gm. Seven aspirations are made at ten day intervals, and at the last sitting a simple aspiration is done and a compress applied. The walls collapse and agglutinate.

Types of Pneumococci in Infants and Children

DR. A. GRAEME MITCHELL, Philadelphia: Ninety children were studied; 11.1 per cent. showed Type I; 11.1 per cent. Type II; 3.3 per cent. Type III, and 74.4 per cent. Type IV. The mortality of infants and children infected with the fixed types (I, II, III) seems to be lower than in adults; with Type IV it is slightly higher (10.9 per cent.) than in adults. The fixed type occurs at all ages, the Type IV pneumococcus often causes as severe an infection as the fixed types. Type I seems to cause a mild infection. Type IV is the most frequent infecting organism in bronchopneumonia. Complications are more frequent with the Type IV infection. All the severe complications (empyema and meningitis) were in those infected with the Type IV pneumococcus.

Specific Treatment of Acute Lobar Pneumonia

DR. RUFUS COLE, New York: Clinical experience indicates that an immune serum effective against Type I pneumococci has great value. Immune serums against other types, however, are at present not of therapeutic importance.

The Curability of Certain Cases of Chronic Nephritis

DR. ALFRED STENGEL, Philadelphia: Chronic nephritis is not at all a chronic disease in the sense that it is a process which, once initiated, through the impetus originally given goes on and on as a progressive malady. There is required a repetition of stimuli or of assault similar to or the same as the original one. There is evidence to show the relation of nephritis to infections, and the probability that repeated reinfections occasion a gradually increasing involvement of the kidneys. We have clinical evidence to show that removal of foci of infections is sometimes followed by an arrest of the disease, or if the condition is not too far advanced, complete disappearance of symptoms.

DISCUSSION

Dr. David Riesman, Philadelphia: There are some conditions in which the discovery of the focus of infection is the cure of the condition. This fact is not so well established for nephritis as it is for arthritis. Heredity should be considered in studying the etiology of nephritis. I have had under my care a child who had never been seriously ill but who died of chronic parenchymatous nephritis, evidently hereditary, since the father had had chronic interstitial nephritis. There are also cases wrongly labeled chronic nephritis because of the finding of albumin. A stone may be present which has given no classical symptoms but does cause irritation in the pelvis, perhaps of the kidney function, and gives albumin and casts. In a case of a boy of 8 years who had had scanty urine with albumin for three years, removal of the enlarged tonsils was considered inadvisable because of the apparently hopeless chronic nephritis. We took the tonsils out, however, and after three or four months the child began to improve, and he is in good health today.

Dr. George E. Holtzapple, York: In cases of chronic interstitial nephritis in persons of 40 or 50 years of age, I have been impressed with the frequency with which I get the history of scarlet fever in childhood. Such persons apparently in good health suddenly develop symptoms of uremia. Examination of the blood pressure reveals hypertension; the urine is pale, abundant in quantity, and of low specific gravity with a few casts and perhaps a little albumin.

Some Phases of Chronic Colitis

Dr. Edwin Zugsmith, Pittsburgh: It is probable that the persistent showing of any amount of mucus justifies the diagnosis of colitis. Record has been made of a single evacuation of several pounds of mucus. Toxic materials entering the body because of the loss of the selective power of the colon in absorbing material cause anemia and nervous irritability often diagnosed as neurasthenia. Colitis is often a process secondary to infection of gums, teeth, throat and nasal sinuses, of the bronchial tubes, probably of the gallbladder, incompetent functionating power of the liver and pancreas, dietetic errors, and the abuse of laxatives. The relationship of colitis and appendicitis is very close. The tendency to progressive stasis about the cecum subsequent to appendectomy indicates the need of after-treatment in such cases, with particular attention to the colon. While colitis is often a secondary process, it may give rise to other conditions; some of the worst cases of inflammatory rheumatism undoubtedly have their origin in a diseased colon. Colitis is sometimes confused with other diseases, chiefly because the stool examination is omitted. Careful examination revealing tenderness in the right iliac fossa would often save the embarrassment of the mistaken diagnosis of appendicitis. Some cases of colitis are diagnosed ulcer of the stomach and duodenum on the history of pain after eating. The teaching that such pain means ulcer is fallacious. The proximity of the hepatic flexure to the gallbladder also confuses diagnosis. Colitis is often confused with neurasthenia through carelessness. The disease is essentially chronic. That it cannot be cured is a pessimism beyond justification. With proper food, hygiene and medication, many patients are cured and the majority are greatly improved. The most efficient guide against dietary errors is the frequent microscopic examination of the stools. Next in importance to diet in the treatment are hygienic regulations. Olive oil injected into the sigmoid at night, half a pint or more, and allowed to remain over night, aids more than any other remedy in overcoming constipation.

Chronic Intestinal Indigestion in Children

Dr. Robert K. Rewalt, Williamsport: Chronic intestinal indigestion is the most common ailment in children between the ages of 1 and 6 years. It will usually be found that the child has been fed improperly for some time. Treatment will give splendid results if the physician has the cooperation of the mother or nurse. The child should be kept in bed until the temperature remains normal for three or four days. A strict diet is the most important factor in treatment, consisting of milk and scraped beef or beef juice; four feedings a day may be given. A more liberal diet is instituted gradually. Intestinal irrigation is of much service in the presence of much mucus, and the fluid should be warm physiologic sodium chlorid solution, used once or twice a day. Of the intestinal antiseptics, salol and the *Bacillus bulgaricus* have been of great value in certain cases; but the *Bacillus bulgaricus* must be used where there is a tendency to acidosis. For the constipation, calomel and phenolphthalein, 1/10 grain of each, every half hour for ten doses, is admirable. This may be continued every week for as long as is necessary. The tincture of nux vomica is by far the best general tonic. The bitter wine of iron in connection with Fowler's solution is of value in cases in which the secondary anemia persists.

Value of the Roentgen Rays in the Diagnosis of Pulmonary Tuberculosis

Dr. Willis F. Manges, Philadelphia: Tubercles of macroscopic size, whether miliary or conglomerate, cast recognizable shadows on the plate. The presence of such shadows is essential to definite Roentgen diagnosis. The lesion in the depth of the lung is as easily recognized as one at the surface. This is not true of other methods of physical diagnosis. The roentgenogram furnishes the best record as to extent and gross character of the lesion at any time and frequently reveals the presence of tuberculosis when the disease has been overlooked clinically. Stereoroentgenograms of excellent quality are essential to negative diagnosis in any portion of the lungs.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

July, XX, No. 1

1 Embryology of Bird's Lung. W. A. Locy and O. Larsell, Chicago.—p. 1.
2 Fusion of Cardiac Anlages and Formation of Cardiac Loop in Cat (Felis Domestica). H. von W. Schulte, New York.—p. 45.
3 Certain Cellular Elements in Celomic Cavities and Mesenchyma of Mammalian Embryo. V. E. Emmel, Chicago.—p. 73.
4 Genesis, Development, and Adult Anatomy of Nasofrontal Region in Man. J. P. Schaeffer, Philadelphia.—p. 125.

September, No. 2

5 Lachrymal Gland. J. Sundwall, Lawrence, Kan.—p. 147.
6 Experimental Mitochondrial Changes in Pancreas in Phosphorus Poisoning. W. J. M. Scott, Baltimore.—p. 237.

American Journal of Public Health, Boston

October, VI, No. 10

7 Plan for Education in Industrial Hygiene and Avoidance of Occupational Complaints. J. W. Schereschewsky, Washington, D. C.—p. 1031.
8 Methods and Results in Instruction in Personal Hygiene—Prospect of Improving Expectation of Life in Middle Age. E. C. Howe, Boston.—p. 1039.
9 Study of Methods for Determining Air Dustiness. G. T. Palmer, L. V. Coleman and H. C. Ward, New York.—p. 1049.
10 Control of Communicable Diseases in Schools. S. J. Baker, New York.—p. 1078.
11 West Virginia Flood of August 9, 1916, and Health Relief Measures. M. Tolman.—p. 1083.
12 Six Months of Harrison Act. C. E. Terry, Jacksonville, Fla.—p. 1087.
13 Grading of Milk in Small Communities. L. R. Williams, New York.—p. 1093.
14 Rôle Played by Public Health Nurse in Control of Communicable Diseases. C. J. Hastings, Toronto, Canada.—p. 1100.
15 What Ohio Is Doing to Conserve Life in Industries. V. T. Noonan.—p. 1102.
16 Scarlet Fever During 1915 in Philadelphia. M. Ostheimer, Philadelphia.—p. 1104.
17 Some Practical Methods of Bacteriologic Water Analysis and Results Obtained. A. V. Graf and A. G. Nolte, St. Louis.—p. 1109.

Arkansas Medical Society Journal, Little Rock

October, XIII, No. 5

18 Carriers and Epidemics. C. W. Garrison, Little Rock.—p. 91.
19 Dysentery. T. F. Hudson, Luxora.—p. 95.
20 Maxillary Sinusitis. W. T. McCurry, Little Rock.—p. 100.

Boston Medical and Surgical Journal

October 26, CLXXV, No. 17

21 Anterior Poliomyelitis. A. J. McLaughlin, Boston.—p. 587.
22 *Occurrence and Diagnosis of Pericarditis. E. A. Locke, Boston. —p. 590.
23 *Frequency of Epilepsy in Offspring of Epileptics. D. A. Thom, Palmer.—p. 599.
24 Artificial Heliotherapy; Mercury-Vapor-Quartz Light Valuable Therapeutic Agent. J. Bryant, Boston.—p. 600.
25 Treatment of Obesity by Rational Diet. E. E. Cornwall, Brooklyn.—p. 601.
26 Streptococcus Mucosus Capsulatus as Cause of Mastoid Disease; Report of Cases. G. Bacon, New York.—p. 602.
27 Case of Double Empyema Successfully Operated. F. B. Lund and H. Morrison, Boston.—p. 606.

22. **Occurrence and Diagnosis of Pericarditis.**—A study of the necropsy reports at the Boston City Hospital for the past nineteen years together with the clinical records of the same cases was made by Locke. The total number of postmortem sections made was 3,683. Acute lesions of the pericardium were described in 150, and chronic lesions in 209 instances. Exclusive of these 359 cases of true pericarditis, 88 showed milk patches in the pericardium. Acute endocarditis was described in 185, or 5 per cent., and chronic endocarditis in 462, or 12.6 per cent. Locke examined all the clinical records of the 150 cases of the acute form. In only 27 instances, or 17 per cent., is there any clear evidence in the clinical notes of the presence of disease of the pericardium. There were 17 cases, with an effusion of 200 c.c. or more, the amount varying from this minimum to a maximum of 1,000 c.c.

In the group of acute cases the largest number are of the so-called fibrinous type although the fibrinous, serofibrinous, purulent and adhesive forms are found with about equal frequency, the limits being 21.33 and 28 per cent. The serofibrinous, purulent and hemorrhagic, recognized clinically as pericarditis with effusion, together represent 50.7 per cent. of the total acute cases. Among the chronic types the serofibrinous and adherent forms distinctly predominate. This last mentioned group comprises approximately 46 per cent. of the total. In the 150 cases of acute pericarditis rheumatism was evident as the primary disease only twice. Pneumonia was the cause in 63 cases; empyema in 6; tuberculosis in 7; local or general sepsis in 28; nephritis in 16; meningitis in 3; not determined in 17 cases.

23. **Frequency of Epilepsy in Offspring of Epileptics.**—That epilepsy is less often transmitted directly from parent to offspring than has heretofore been believed is the conclusion reached by Thom from a study of thirty-three cases.

Georgia Medical Association Journal, Augusta

October, VI, No. 6

28 Diagnosis of Duodenal Ulcer. G. M. Niles, Atlanta.—p. 99.
29 Roentgenogram in Diagnosis of Renal Calculus. C. D. Cleghorn, Macon.—p. 103.
30 Cutaneous Manifestations of Syphilis. M. B. Hutchins, Atlanta. —p. 105.
31 *Two Cases of Tetanus Treated with Antitetanic Serum and Magnesium Sulphate; Recovery. L. C. Fischer, Atlanta.—p. 108.
32 Puerperal Septicemia. R. L. Rogers, Fairmont.—p. 110.
33 Brotherhood of Physicians. J. L. Weddington, Dublin.—p. 111.

31. Abstracted in THE JOURNAL, May 6, p. 1490.

Indiana State Medical Association Journal, Fort Wayne

September, IX, No. 9

34 *Uronephrosis; Its Significance and Detection. H. O. Mertz, Laporte.—p. 351.
35 Sequelae of Oral Foci of Infection. C. D. Lucas, Indianapolis. —p. 361.

34. Abstracted in THE JOURNAL, Nov. 20, 1915, p. 1846.

Journal of Immunology, Baltimore

October, I, No. 5

36 Cutaneous Reaction in Canine Distemper. J. A. Kolmer, M. J. Harkins and J. Reichel, Glenolden, Pa.—p. 301.
37 *Antibody Production by Typhoid Vaccines. H. W. Stoner, Baltimore.—p. 311.
38 Can Specific Neurotoxin Be Obtained from Corpus Striatum? L. M. Moore, San Francisco.—p. 325.
39 Action of Amido-Acids, Peptids and Proteins on Hemolysis by Cobravenom. E. Zunz and P. György, Brussels.—p. 331.
40 Relation of Bronchisepticin Skin Reaction to Immunity in Canine Distemper Including Bactericidal Action of Dog Serum for B. Bronchisepticus. J. A. Kolmer, T. Matsunami and M. J. Harkins, Glenolden, Pa.—p. 371.

37. **Antibody Production by Typhoid Vaccines.**—Stoner concludes from his experiments that as measured by the production of agglutinin, bacteriolysin and opsonin, sensitized vaccine possesses no distinct advantage over nonsensitized vaccine in the production of prophylactic typhoid immunity. The reactions following the injections of prophylactic typhoid vaccine are about the same with both the sensitized and nonsensitized product. Owing to lack of concrete evidence that prophylactic typhoid immunity is due wholly to phagocytic activity, and that sensitized vaccine produces an increased phagocytosis, the author shall still continue to recommend the use of nonsensitized vaccine.

Journal of Infectious Diseases, Chicago

November, XIX, No. 5

41 *Specificity of Abderhalden Reaction with Vegetable Proteins. O. J. Elsesser, Chicago.—p. 655.
42 *Complement Content of Eck-Fistula Dogs. N. P. Sherwood, C. Smith and R. West, Lawrence, Kan.—p. 682.
43 *Permeability of Gastro-Intestinal Wall to Infection with Sporothrix Schenckii. D. J. Davis, Chicago.—p. 688.
44 Relation of Allantoin Excretion to Leukopenia and Leukocytosis in Rabbits. O. H. P. Pepper and T. G. Miller, Philadelphia. —p. 694.
45 *Laboratory Infection Caused by Bovine Strain of Bacillus Enteritidis. K. F. Meyer, San Francisco.—p. 700.
46 Virulent Salt Solution Used in Production of Hog-Cholera Serum. W. S. Robbins, East Lansing, Mich.—p. 708.
47 *Etiology of Fibromyoma of Uterus. A. H. Curtis, Chicago. —p. 712.
48 *Case of Anthrax. G. G. Reinle and R. A. Archibald, Oakland, Calif.—p. 718.
49 Comparison of Rate of Multiplication of Bacteria in Raw Milk with Rate in Pasteurized Milk. P. W. Allen, Urbana, Ill. —p. 721.
50 Experimental Studies with Endameba Gros. F. Hecker, Kansas City, Mo.—p. 729.
51 *Culture Media for Gonococcus. T. Watabiki, London.—p. 733.

41. **Specificity of Abderhalden Reaction with Vegetable Proteins.**—It is demonstrated by Elsesser that the specificity of the Abderhalden reaction (dialysis method) in experimental animals (rabbits) immunized with pure isolated vegetable proteins is far from being absolute. In comparing the results obtained by the Abderhalden test with those obtained by anaphylaxis, by Wells, Osborne and Lake, using the same pure vegetable proteins in each case, it was found that the results present certain resemblances, but also often definite differences. In either reaction the more closely the proteins are allied chemically and physically, the less specific the reactions tend to become. On the whole, however, the results obtained by anaphylaxis are much more constant and specific.

42. **Complement in Eck-Fistula Dogs.**—The main result of this study appears to be the fact that there does not seem to be sufficient evidence, as yet, to warrant the assumption that the liver plays a more important rôle in the production of complement than do other organs or tissues of the body.

43. **Permeability of Gastro-Intestinal Wall to Sporothrix.**—Feeding this organism to rats, Davis found that it penetrates the normal mucosa of the intestinal tract, although no lesions active or healed were visible in the mucosa or in the wall of the stomach or intestines.

45. **Laboratory Infection with Bacillus Enteritidis.**—This paper presents clinical, bacteriologic and serologic observations of an accidental laboratory infection. A young man who apparently was predisposed to the infection on account of a chronic mucous colitis developed a severe gastro-enteritis ten hours after having handled a bottle of sterilized milk which was artificially contaminated with a culture of *Bacillus enteritidis* (Gärtner). The strain responsible for the infection had been isolated from the heart blood of a calf which had succumbed to infectious diarrhea. Evidence is presented to show that a recently isolated strain of *B. enteritidis* pathogenic for animals may differ from a strain pathogenic for man in its inability to be coagglutinated by paratyphoid or suipestifer serums.

47. **Etiology of Fibromyoma of Uterus.**—Attempts to secure cultures were made by Curtis with selected material from eighty patients with uterine fibroids. This material consisted of juices obtained by means of a meat crusher, and by grind-

ing. Forty-five specimens yielded no growth and twenty-two more were essentially negative. Thirteen gave positive findings. In six of these the endometrium was studied with positive results in two cases, and negative results in four. In two instances in which the patients had suffered from previous pelvic infection the diseased tissues were ground and cultured in a search for growth similar to that obtained from the fibroids. The mediums remained sterile. Diphtheroid bacilli, streptococci and small gram-positive bacilli were most often found. None of these exhibited virulence for animals. There was no tendency to produce new growth in the uteri and other pelvic organs of animals inoculated. A causal relationship between bacterial invasion of the uterus and the development of fibroid tumors was not evident; the small percentage of cases which yielded growth, the considerable variety of the bacteria isolated, and the lack of pathogenicity for inoculated animals, permit no other deduction.

48. **Case of Anthrax.**—This case is remarkable in that there were in all five pustules on the patient's arm, and excision, which most authorities believe to be the classical method of treatment, was not resorted to. Antianthrax serum, it appears, played an important rôle in bringing about recovery. Following the first dose of serum all the lesions became less progressive in appearance, and the progress of the fifth pustule, which appeared on the day treatment was commenced, was arrested immediately. Furthermore, the temperature curve seems to have been influenced by something other than the patient's own reactive powers; it gradually ascended until it reached the maximum of 103 F. thirty-six hours after the use of the antianthrax serum had been commenced, and then decreased as immunity and convalescence became established, reaching normal in about eighty-four hours. Another interesting point is that on the seventh day after the serum treatment had been commenced, smears and cultures from secretions underneath the crusts, which were raised to permit drainage, failed to reveal the presence of the anthrax bacillus or of any other infection. Coincident with improvement in the patient's condition the eosinophils became a factor in the blood picture. With signs of relapse due to drainage of secretions from the pustules into the neighboring subcutaneous tissue, the eosinophilia disappeared. When this situation was relieved, the eosinophilia reappeared and then gradually subsided as convalescence progressed.

51. **Culture Media for Gonococcus.**—Watabiki has used as a substitute for blood agar the following medium: 200 c.c. of cow's milk are warmed to 60 C. and 5 per cent. ascitic agar is added drop by drop, the milk being shaken to cause precipitation of the casein. It is then filtered through filter paper. To the filtrate is added 10 per cent. caustic soda solution up to the point of slight alkalinity, and then 2 gm. of urea. The clear colorless fluid is sterilized at 60 C. for thirty minutes every day for three days. The sterilized fluid is then mixed with melted 0.3 per cent. nutrose agar at 45 C. in the proportion of 1 part of the fluid to 2 parts of agar. Plate or slant forms are prepared as needed. The medium must be incubated before use to make sure that no microorganisms have gained access during preparation. When fluid mediums are needed, equal parts of the fluid and of ordinary broth or peptone water are mixed. It is very necessary that the fluid should not be heated above 70 C., as unsatisfactory results frequently follow the use of the fluid heated at a higher temperature. For the precipitation of casein the amount of acid is not constant, the different samples of milk undoubtedly varying in quality.

Journal of Nervous and Mental Diseases, Lancaster, Pa.

October, XLIX, No. 4

52 *Obstetric Paralysis. J. J. Thomas and J. W. Sever, Boston. —p. 289.

53 *Convulsive Spasm of Face Produced by Cerebellopontine Tumors. H. Cushing, Boston.—p. 312.

54 *Facial Diplegia in Multiple Neuritis. H. T. Patrick, Chicago. —p. 322.

52 and 54. Abstracted in The Journal, June 17, p. 2036.

53. Abstracted in The Journal, June 10, p. 1886.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

October, IX, No. 1

55 *How Rapidly Does Intact Thyroid Elaborate Its Specific Iodin Containing Hormone? D. Marine and J. M. Rogoff, Cleveland.—p. 1.

56 *Antagonism Between Atropin and Certain Central Emetics. C. Eggleston, New York.—p. 11.

57 *Elimination of Strychnin by Kidneys. R. A. Hatcher and M. I. Smith, New York.—p. 27.

58 *Pharmacology of Aconitum Heterophylloides, A. Nagarum and A. Napellus. T. R. Fraser, Edinburgh.—p. 43.

59 Effect on Tadpoles of Feeding Thyroid Products Obtained by Alkaline Hydrolysis. J. M. Rogoff and D. Marine, Cleveland. —p. 57.

55. **How Rapidly Does Intact Thyroid Elaborate Its Specific Iodin Containing Hormone?**—Marine and Rogoff found that following the injection of 50 mg. of potassium iodid into the circulation definite histologic changes (always involutionary) can be detected within twenty hours in favorable cases. The more marked the hyperplasia the more readily they are detected. Definite differences in the pharmacologic activity of control and iodized thyroid lobes can be detected as early as the eighth hour. This difference becomes well marked by the twentieth hour. These facts indicate that morphologic changes are closely related in time and dependent on the elaboration of the iodin containing hormone and that the generally held view that involutionary changes in the gland are the results of a decrease in functional activity of the thyroid cells and a storage and an increase of the pharmacologically active principle—the iodin containing hormone—in the gland is essentially correct. The storage of iodin in the thyroid from salts of this element is practically instantaneous, while the elaboration of the hormone is slow. Variations in the rate of formation of the active substance when taken in connection with the normal occurrence of iodin in the thyroid in both an active and an inactive form suggest the physiologic importance of the mother substance with which the iodin is combined.

56. **Antagonism Between Atropin and Emetics.**—It is claimed by Eggleston on the basis of experimental study that atropin and hyoscyamin are capable of antagonizing the vomiting produced in dogs by some central emetics—pilocarpin and nicotin—and are incapable of antagonizing that of other central emetics—morphin, apomorphin, aconitin, emetin and ouabain. The antagonism of atropin or hyoscyamin toward the emetic action of pilocarpin and nicotin is not of a chemical nature, but is physiologic and takes place on the center. The observations suggest a complexity of the vomiting center including at least two different points of action, or sets of receptors, for chemical stimuli. The one is stimulated by pilocarpin and nicotin and depressed by atropin. The other is stimulated by morphin, etc., but not by pilocarpin and nicotin and is not depressed by atropin.

57. **Elimination of Strychnin by Kidneys.**—Strychnin often appears in the urine within a few minutes after its administration, but only in the merest traces, and Hatcher and Smith caution that one should distinguish sharply between this prompt appearance of the merest traces and the rapid rate of elimination that accompanies excessive diuresis. Large doses of strychnin sulphate may be injected intravenously into dogs without the appearance of more than traces in the absence of copious diuresis within periods of two and a half to five and a half hours. In every one of seventeen experiments on dogs in which diuresis was actively induced the strychnin was eliminated at a relatively rapid rate by the kidneys, but nevertheless, in none of the fourteen experiments in which the amount of strychnin administered exceeded the average fatal dose by 20 per cent. or more was the amount eliminated in the urine during copious diuresis equal to the excess over the average fatal dose—in other words, the renal elimination alone was never sufficient to save the animal's life.

The authors suggest that it is possible that diuresis may contribute to the successful therapeutic treatment in those cases in which the amount taken is only slightly in excess of the minimal dose that would be fatal in the absence of treatment, or in cases in which the absorption of the poison is

very slow, but it must play a minor rôle in the treatment of poisoning in cases in which very large doses of strychnin have been taken and in such cases artificial respiration and general anesthesia with ether and chloroform must continue to be the chief reliance. Hydrated chloral would seem to be contraindicated in such cases because of its tendency to exert its depressant action after the need for it has ceased.

58. **Pharmacology of Aconitum Heterophylloides.**—Fraser's experiments indicate that *A. heterophylloides* and, probably, *A. nagarum* contain a preponderance of pseudo-aconitin, or a similarly acting alkaloid, whereas *A. napellus* contains a preponderance of aconitin.

Journal-Lancet, Minneapolis

October 15, XXXVI, No. 20

60 *Fundamental Principles Underlying Treatment of Heart Disease. C. L. Greene, St. Paul.—p. 587.
61 Chlorin as Therapeutic Agent. M. B. Haldorson, Souris, N. D. —p. 596.
62 Infection Theory of Preeclamptic Toxemia and Eclampsia. R. T. La Vake, Minneapolis.—p. 600.

60. **Treatment of Heart Disease.**—The general attitude of medical men toward especially serious or apparently hopeless cases of cardiovascular disease, traditional attitude of hopelessness, Greene says, leads to the abandonment of many cases long before such a step is necessary, and involves the loss of many opportunities to win a victory in the face of what may seem certain defeat. Quite as striking, and no less disastrous, is the assumption that little can be done for the disease of the primary degenerative type which occur in elderly people. Many a fine old gentleman is permitted to drift along with steadily but almost imperceptibly failing faculties and strength when a little care and treatment at the proper time, and repeated as may be necessary, will greatly prolong his life, and for considerable periods retard the sequelae of the senile degenerative processes. Greene states emphatically that at the present time the cardiopath is not receiving at the hands of medical men either the comfort or the length of days readily obtainable in a great majority of instances by the intelligent application of modern methods of diagnosis and treatment.

Nebraska State Medical Journal, Omaha

October, I, No. 4

63 Uterine Cancer. E. B. Brooks, Pawnee City.—p. 99.
64 Deep Roentgen Therapy. A. F. Tyler, Omaha.—p. 103.
65 Roentgen-Ray Immunity. F. H. Kaegle and M. G. Wohl, Omaha. —p. 106.
66 Practical Roentgen-Ray Pointers. W. H. Mick, Omaha.—p. 109.
67 Cranial Fractures from Standpoint of Neurologist. G. A. Young, Omaha.—p. 112.

New York Medical Journal

October 21, CIV, No. 17

68 Medical Treatment of Goiter. J. M. Anders, Philadelphia.—p. 773.
69 Early Diagnosis of Tuberculosis. E. O. Otis, Boston.—p. 775.
70 Removal of Third Lobe of Cystic Goiter. A. E. Gallant, New York.—p. 778.
71 Focal Points of Infection. N. P. Barnes, Washington, D. C.—p. 779.
72 Laryngeal Abscess; Report of Three Cases. M. J. Ballin, New York.—p. 781.
73 Leiomyoma of Pylorus. J. R. Eastman and H. K. Bonn, Indianapolis.—p. 785.
74 Gravid Uterus Duplex. W. R. Jackson, Mobile, Ala.—p. 788.
75 Tuberculosis of Bronchial Lymph Nodes. M. E. Lapham, Highlands, N. C.—p. 789.
76 Pyorrhea Alveolaris. R. G. Hutchinson, Jr., New York.—p. 795.
77 Chauffeur's Fracture of Radius. A. C. Burnham, New York.—p. 797.
78 Pseudoscarlatina. B. Frankel, New York.—p. 799.

New York State Journal of Medicine

October, XVI, No. 10

79 *Results of Cranial Decompression in Selected Types of Cerebral Spastic Paralysis Due to Hemorrhage. W. Sharpe, New York.—p. 475.
80 Types of Cerebral Defect in Children That May Be Benefited by Operation. H. G. Matzinger, Buffalo.—p. 484.
81 *Vision of Schoolchild. P. Lewis, Buffalo.—p. 486.
82 Therapeutic Importance of Scientifically Conducted Health Resort. W. B. James, New York.—p. 489.
83 Scope of Practicable Examination in Routine School Medical Inspection. C. P. McCord, Albany.—p. 493.
84 Diagnosis and Treatment of Ureteral Calculi. E. Beer, New York.—p. 501.
85 Diagnosis of Renal Tuberculosis. T. F. Laurie, Auburn.—p. 503.
86 Contract Practice. J. V. Woodruff, Buffalo.—p. 507.
87 *Postoperative Ventral Hernia. E. MacD. Stanton, Schenectady.—p. 511.
88 Education of Health Officers. F. Overton, Patchogue.—p. 515.
89 Roentgenography of Mastoid. F. M. Law, New York.—p. 517.

79. **Cranial Decompression in Cerebral Spastic Paralysis.**—This paper is a report of the operative treatment of 219 selected cases of spastic paralysis showing intracranial pressure both by an ophthalmoscopic examination and the measurement of the pressure of the cerebrospinal fluid at lumbar puncture; these operated patients up to April 1, 1916, are the ones selected as being suitable for the operation from the examination of 954 cases of spastic paralysis, that is, one in about every four cases examined. The operations which have been used in the past and are still being used to improve the conditions of spastic paralysis, namely, tenotomies, tendon lengthenings, sections of the posterior nerve root, alcohol injections of peripheral nerves, nerve resections and other operations, are, in Sharpe's opinion, of only temporary benefit, and he says he has yet to see a case in which the spasticity has not returned, in some degree, within one year. In all of his cases treated by the operations just mentioned during the past two and one-half years, the spasticity began to reappear within one year after operation.

The improvement in cases selected for operation has been so marked—not only a lessening of the spasticity, but a definite amelioration of the mental condition of the patient—and Sharpe believes a cranial decompression is indicated in those cases of spastic paralysis showing an increased intracranial pressure by the ophthalmoscopic examination and confirmed by a measurement of the pressure of the cerebrospinal fluid at lumbar puncture. Of the 954 cases of spastic paralysis examined, about 26 per cent. have shown signs of intracranial pressure, and are, therefore, patients that can be very much improved.

81. Abstracted in THE JOURNAL, June 3, p. 1815.

87. **Postoperative Ventral Hernia.**—Following the 500 laparotomies analyzed by Stanton there developed twenty-four hernias. Of these operations 456 were performed through midline or rectus incisions followed by twenty-one hernias. Each of these twenty-one hernias developed as the direct result of an insufficiently firm union of the fascia layers lying anterior and posterior to the rectus muscles. Stanton emphasizes the fact that in rectus and midline, and also in kidney incisions, it is the fascia which must be relied on to give permanent security to the scar. The technic which gives the best union of the divided fascia layers will give the fewest hernias. The fascia of the posterior sheath is the first line of defense. Suturing the peritoneum does not necessarily mean that the fascia is also sutured. In the case of rectus and midline incisions unless excessively large drains are employed the prognosis as regards subsequent hernia after the use of drainage will depend on the character of fascia union obtained in the sutured portion of the wound.

Ohio State Medical Journal, Columbus

October, XII, No. 11

90 Medical Side of Glaucoma. A. Knapp, New York.—p. 663.
91 Closure of Large Breast Wounds. J. L. Ransohoff, Cincinnati.—p. 666.
92 Castration by Patient; Report of Case. J. W. Fitch, Portsmouth.—p. 669.
93 Plea for Electrocautery in Treatment of Laryngeal Tuberculosis. S. Iglauer, Cincinnati.—p. 670.
94 Dual Personality. C. W. Stone, Cleveland.—p. 672.
95 Some Diseases Resulting from Infection of Mouth and Upper Air Passages. A. H. Herr, Lima.—p. 674.
96 Indications and Value of Gastric Lavage as Therapeutic Agency. E. S. Jones, Painesville.—p. 677.

Tennessee State Medical Association Journal, Nashville

October, IX, No. 6

97 Some Features of History Taking. W. H. Witt, Nashville.—p. 229.
98 Etiology of Tuberculosis. C. A. Robertson, Ridgetop.—p. 234.
99 Dacryocystitis as Predisposing Cause of Corneal Ulcers. L. M. Scott, Jellico.—p. 238.

100 *Treatment of Hip Disease. A. G. Nichol, Nashville.—p. 242.
101 Prostatic Problem. G. P. Zirkle, Kingston.—p. 244.
102 *Analysis of One Hundred Consecutive Cases of Appendicitis Operated on at Newell Clinic. E. D. Newell, Chattanooga.—p. 246.
103 *Tuberculosis of Colon. W. C. Dixon, Nashville.—p. 248.
104 Cooperation with Proprietary Preparations. K. S. Howlett, Franklin.—p. 250.
105 Senile Prostatic Hypertrophy. H. L. Fancher, Chattanooga.—p. 253.
106 Surgical Treatment of Some Tubercular Conditions. W. B. Burns, Memphis.—p. 254.

100 and 102. Abstracted in THE JOURNAL, April 22, pp. 1348 and 1349.

103. Abstracted in THE JOURNAL, April 22, p. 1347.

Vermont Medicine, Rutland

September, 1, No. 9

107 *Surgery of Thyroid. C. A. Porter, Boston.—p. 249.
108 Some Features of Epidemic Poliomyelitis. C. S. Caverly, Rutland.—p. 260.

107. Surgery of Thyroid.—Of eighty-five patients operated on by Porter, twenty are absolutely cured; eighteen much improved; thirteen improved; four not improved and are requiring further operation; sixteen have not reported or done so in too general terms to be valuable for statistics. If then, Porter says, a patient has had a reasonable course of rest, medical treatment and Roentgen-ray treatment (if this proves to be really and permanently satisfactory) and the symptoms persist, operation should be advised. Among wage-earners who cannot give up the time, and in the chronic cases in which the disease has advanced too far to allow of delay, after preliminary rest, operation should be performed. Whether this be a preliminary ligation or lobectomy under local or general anesthesia must be determined in each case. Finally, in chronic cases in which there is doubt as to whether the patient is suffering from existing toxemia or has been poisoned irreparably by the disease, modern tests, of which basal metabolism is probably the most important, will aid the surgeon much in deciding for or against operation.

Wisconsin Medical Journal, Milwaukee

October, XV, No. 5

109 Symptoms and Diagnosis of Accessory Sinus Diseases. A. G. Kreutzer, Milwaukee.—p. 142.
110 General Considerations in Treatment of Fractures. H. Reineking, Milwaukee.—p. 145.
111 Infantile Paralysis; Its Management from Standpoint of Orthopedist. F. J. Gaenslen, Milwaukee.—p. 148.
112 Blood Sugar. J. P. Canavan and A. W. Dahlstrom, Milwaukee.—p. 151.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

October 7, II, No. 2910

1 *Simple Modification of Guillotine or Flapless Method of Amputation. Forceps Tourniquet. J. L. Thomas.—p. 481.
2 *Intraspinal Treatment of Syphilis of Central Nervous System; Report of Cases. A. R. Robertson.—p. 482.
3 *New Ulcerative Dermatomycosis. A. Castellani.—p. 486.
4 Further Experiments on Ascaris Infection. F. H. Stewart.—p. 486.
5 *Vaccine in Mediastinal Actinomycosis. W. S. Malcolm.—p. 488.
6 *Postmortem Findings in Case of Exophthalmos of Long Standing Originally Due to Exophthalmic Goiter. R. Mackinnon.—p. 488.
7 Universal Leg Frame, Splint and Cradle Combined. M. J. Chevers.—p. 489.

1. Emergency Amputations in Military Surgery.—The modification which appeals to Thomas is that which consists in making two lateral incisions through the apparently healthy soft tissues right down to the bone. The upper or proximal extensions of the lateral incisions are determined by the point at which sufficient soft tissues can be obtained to give ample covering for the bone. The main indications are speed and simplicity. The following are the essential points in carrying out the circular amputation with lateral incisions: The level at which the section of the bone is to be made must first be determined. The proximal ends of the lateral incisions begin at this determined point, and are carried down to the bone and continued toward, or into, the damaged tissues. A clean knife must be used for each lateral incision if available; if not, the knife should be thoroughly wiped and sterilized by flame. The soft tissues are then divided by one clean sweep down to the bone after the manner of the old circular method. The two flaps thus produced by the combination of the circular and the lateral incisions are retracted and the bone is sawn through at the level previously determined. The vessels are ligatured with silkworm gut or catgut, not thread or silk, for fear of sepsis in the wound. The flaps are then forcibly pulled down, forming a funnel-shaped cavity in which the muscles are not in apposition. This cavity is firmly packed with sufficient gauze wrung out of Wright's hypertonic salt solution or Dakin's fluid so as just to allow the flaps to meet firmly over the packing. The flaps are secured in position by three strips of self-adhesive strapping and the ends of the gauze are allowed to project at each corner through the lateral incisions. The stump is then covered with a dressing of sterile gauze and a bandage. The ordinary rubber drainage tubes, whether large or small, must not be used. In some cases, but only rarely, a few interrupted sutures of silkworm gut may be inserted to reinforce the strapping, but they should be quite slack.

2. **Syphilis of Central Nervous System.**—Of the eight cases reported by Robertson, two showed early, and in one slight, involvement of the central nervous system within a year of the primary infection. Each had received during the secondary period a single injection of salvarsan, followed by maximal doses of mercury by mouth, without, however, preventing the onset and progressive involvement of the central nervous system. A single combined treatment by intravenous salvarsan and intraspinal salvarsanized serum in the eighth case sufficed to clear up the leukoplakia on the tongue and convert the pathologic spinal fluid into a normal fluid. In one case a progressing nerve deafness was arrested, hearing restored to approximately the normal, the eye condition much improved, and the headache and nervousness abolished. The general health was also markedly improved, so that he was able to enlist for active service. The spinal fluid became negative to the Wassermann reaction. The other six cases were all of long duration, and showed various manifestations of the disease. In all the general health was markedly improved, and in cases in which headache and nervousness were present they disappeared. Shooting pains, present in three cases, were abolished. In all but one of the six cases, eye changes—usually inequality of pupils—were improved. In one case of early tabes dorsalis the atonic bladder recovered, and the anesthesia of hands and feet was remarkably improved. In seven cases the butyric acid test (Noguchi) for globulin was diminished to a faint reaction, and in one it was entirely abolished. The Wassermann reaction became negative in six of the cases.

3. **New Ulcerative Dermatomycosis.**—The fungus isolated by Castellani belongs to the hyphomycetes or *Fungi imperfecti*, and is of somewhat difficult classification. It is proposed to include it in the genus accladium, at least temporarily, and call it *Accladium castellanii*. The microscopic appearance on culture media (Sabouraud's agar, carrot) recalls somewhat the appearance of *Cladosporium herbarium*, with the difference that the colonies are whitish and amber yellow instead of being greenish black. The growth consists of many small roundish masses which later on often coalesce, covered by spiculated formations consisting of erect, straight filaments parallel to each other or at times interlacing. These filaments are approximately 2 microns in diameter and carry laterally pseudoconidia of variable shape, cylindriform, piriform, or spherical, attenuated in size at their points of insertion. Most of these pseudoconidia are 4 microns long with a breadth of 3 microns. These pseudoconidia become detached and then develop by sprouting, and mycelial filaments are formed. Certain filaments produce spherical chlamydospores arranged in small strings as found in certain fungi of the genus *Fusarium*. These small chains of chlamydospores are very frequently terminal, the dimensions being variable—8 to 10 microns.

In a well marked case ulcers are seen practically all over the body, though on the face, scalp, palms and soles they are in small numbers or altogether absent. The ulcers are generally sharply defined, roundish or oval, with red granulating fundus. In certain cases there may be abundant purulent secretion, and the ulcers are often covered by thick yellow crusts. Gumma-like nodules and furuncle-like lesions may also be observed. Some of the superficial lymph glands are often enlarged. The lesions are not as a rule very painful, and there is little or no itching. The general condition of the patient is not seriously affected for a long time, but he often complains of weakness, general discomfort and is unfit to attend to his work. Occasionally there is serotine temperature. In two cases in which the blood was investigated red blood corpuscles and hemoglobin were slightly below the normal, and in one case there was eosinophilia (5 per cent.). The urine did not contain either albumin or sugar. The course of the disease is long, and if left untreated there is apparently not much tendency to spontaneous cure. Potassium iodid should be given in full doses, 20 grains three or four times daily. The drug appears to act better if the patient is given a salt-free diet. As regards local treatment, it is sufficient to keep the ulcers clean by dressing them with weak mercury perchlorid lotion. Ointments are badly borne in most cases.

5. **Vaccine in Mediastinal Actinomycosis.**—Though a radical operation involving rib resection had been successfully performed in Malcolm's case two years before, and iodid in maximum doses was swallowed month after month and pound after pound, two sinuses continued to discharge, one of which was connected with a nodule on the pericardial surface. Treatment was started by weekly subcutaneous injections of 2½ million actino-fragments. The dose was gradually increased up to 10 million. The latter was an overdose. Ultimately 4 or 5 million was found to be an effective dose without bad effects, and this quantity was continued till about fifty doses had been given. The discharge soon lessened, the sinuses healed, the nodule in time could not be made out, and a "fulness" present in the parts disappeared.

6. **Exophthalmos of Long Standing Due to Exophthalmic Goiter.**—All the other symptoms of exophthalmic goiter had disappeared in Mackinnon's case, but the exophthalmos remained to a marked degree. The thyroid was normal in size, colloid appeared rather deficient. The two chief abnormal features recognized in microscopic sections of the gland were a marked vascularity and an increase of the glandular tissue at the expense of the colloid. The acini varied a good deal in size, and were lined with cubical or columnar cells, both being represented in one acinus in many places. The cubical cells predominated. The cells of columnar shape stained more heavily with hematoxylin and had the appearance of more recently formed elements. The thymus was persistent but small. The spleen was normal. A small accessory spleen was present. The pituitary and suprarenal glands showed no macroscopic lesions, and were normal in size and texture. There was no enlargement of the lymphatics, and the cervical ganglia showed no change. The heart was normal, and there was no thickening, hardening, or dilatation of the blood vessels. On removing the supra-orbital plates nothing unusual was found. Owing to the protrusion of the eyeballs, the retro-orbital space was abnormally deep. This space was filled with fat. Pneumonia was the cause of death.

Edinburgh Medical Journal

October, XVII, No. 4

8 Histology of Disseminated Sclerosis. J. W. Dawson.—p. 229. To be continued.
9 *Acute Intestinal Obstruction. A. Miles.—p. 241.
10 Acute Generalized Tuberculosis. A. F. Hewat.—p. 251.
11 Case of Amebic Abscess of Liver. H. L. W. Wemyss.—p. 255.

9. **Acute Intestinal Obstruction.**—Twenty-four cases of obstruction due to bands in which Miles operated are analyzed. In four cases an isolated process of the great omentum had formed an adhesion at its free end and constituted the band which strangulated the bowel. In one case the fallopian tube and broad ligament formed the band. Only in one case was a Meckel's diverticulum the cause of obstruction. The terminal ligament of the diverticulum was attached to the umbilicus. In other cases the following bands were found: I. A short, broad band was found attached at one end over a calcified gland in the mesentery, and at the other to the convex border of the immediately adjacent small intestine. II. A band sprang from the mesentery and was attached to the distal side of an adjacent coil in such a way that its contraction folded the bowel over on itself and occluded it. III. A fibrous cord arose from a calcified gland in the mesentery on one side of the bowel, and passed circumferentially across to become attached again to the mesentery at a point directly opposite this, forming a ring round the intestine, about 3 inches from the ileocecal junction. IV. A band was attached to the convex border of two adjacent coils of small intestine and an intermediate loop slipped under it and was strangulated. V. A mesenteric band, in addition to ensnaring a loop of small intestine, so dragged on the portion of bowel to which it was attached as to kink it, and so cause a double obstruction. VI. The loop that happened to pass under a band had its two limbs bound to one another by firm fibrous adhesions which were evidently of long standing. VII. A week after an appendectomy the abdomen had to be opened to relieve an obstruction of the jejunum due to inflammatory adhesions. Subsequent to this it appears that the convex borders of two pieces of small intestine had become adherent by plastic lymph, and in course of time had been pushed asunder so that the wall of each was drawn out in the form of a short diverticulum. Under the arcade thus formed a loop of bowel slipped and became strangulated. VIII. Two bands sharing in the production of obstruction, one tag of the free border of the great omentum was adherent to the mesentery of the small intestine over some tuberculous glands, and another to the fundus of the bladder.

Journal of Tropical Medicine and Hygiene, London

October 2, XIX, No. 19

12 Equine and Bovine Streptococci as Causal Agents of Human Infections. A. J. Chalmers and A. Marshall.—p. 225.

Lancet, London

October 14, II, No. 4859

13 John Ward and His Diary. D. Power.—p. 665.
14 Trench Fever; Relapsing Fever Occurring Among British Troops in France and Salonica. A. F. Hurst.—p. 671.
15 Operation of Laryngofissure. I. Moore.—p. 675.
16 Late Sequelae of Frambesia. P. Harper.—p. 678.
17 Wound of Portal Vein; Operation; Death Nine Days Later. W. H. C. Romanis.—p. 679.
18 Case of Tonsillitis with Hemorrhagic Adenitis. C. F. Strange.—p. 679.

Medical Journal of Australia, Sydney

September 16, II, No. 12

19 Résumé of Seven Hundred and Sixty Consecutive Midwifery Cases Met with in General Practice. P. L. Hipsley.—p. 221.
20 Conduct of Normal Labor. J. C. Windeyer.—p. 223.
21 Prophylactic Induction in Normal Pelves. F. Barrington. —p. 224.
22 Herniotomy Under Local Anesthesia. D. Kelly.—p. 226.
23 Luxatio Erecta of Shoulder Joint. E. A. Falkner.—p. 227.

September 23, No. 13

24 Incidence of Venereal Disease and Method of Prevention. E. H. Molesworth.—p. 243.
25 Cesarean Section in Eclampsia. W. C. McClelland.—p. 250.
26 Congenital Auricular Fistula. H. Rischbieth.—p. 261.

Bulletin de l'Académie de Médecine, Paris

September 26, LXXVI, No. 38, pp. 211-226

27 *Syphilis Inherited from Great-Grandfather. (Syphilis héréditaire d'origine paternelle à la troisième génération.) Gaucher.—p. 213.
28 Local and General Reactions after Injection of Antitetanus Serum. Bazy.—p. 216.
29 *Cholesterin and Camphor to Mobilize and Reenforce the Natural Defensive Powers. (Mise en état de défense de l'organisme infecté. Méthode nouvelle "Actions antihémolytique et antitoxique." Applications pratiques aux grands blessés de guerre.) F. Barbary.—p. 221.
30 Hypochlorite Sterilization of the Hands. (Procédé de désinfection des mains par les hypochlorites terreux — magnésie et chaux.) Dubard.—p. 223.

27. **"To the Fourth Generation."**—Gaucher is the family physician to an apparently healthy young couple, both free from acquired venereal disease, whose three children present manifestations of inherited syphilis of severe type. One is an idiot. As Gaucher had been the physician also of the grandfather, he recalled certain manifestations of inherited syphilis in this man who had never acquired any venereal disease. At the time, Gaucher confesses, he did not recognize the manifestations as the work of inherited syphilis—in those days less was known about inherited syphilis than now, and the total freedom from acquired venereal disease misled him. But this man's father, the great-grandfather of the three children, died in early manhood from syphilitic paraplegia.

29. **To Reenforce the Natural Means of Defense.**—Barbary has been applying in practice the points learned in recent research on lipoids in general and on cholesterin in particular. The latter seems to stimulate the production of antibodies. By injecting cholesterin directly and injecting another substance which stimulates the production of cholesterin, the cholesterin content of the blood rapidly increases and the body repels or throws off infection and recuperates—all much earlier and more effectually than is otherwise the case. At least this has been Barbary's constant experience with the sick and severely wounded. In his hospital, at Nice, there have only been four deaths among the 767 wounded and nine among the 797 sick during the last twenty-one months, and the deaths among the wounded were explained by other reasons. He uses a mixture of 0.2 gm. cholesterin, 0.5 gm. camphor and 0.0005 gm. strychnin sulphate in 5 gm. olive oil, washed in alcohol. Chauffard has demonstrated that serious infections are always accompanied by a special hypocholesterinemia, while immunization processes show an exceptionally high cholesterin content in the blood.

Paris Médical

September 30, VI, No. 40, pp. 273-288

31 Filiform Drainage for Diffuse Peritonitis. (Nouveau mode de drainage de la péritonite généralisée.) H. Chaput.—p. 273.
32 Factitious Chronic, Picric-Acid Jaundice. (Les ictères picriques chroniques.) P. L. Marie.—p. 277.
33 Symptoms and Diagnosis of Deafness from Explosion Nearby. (Surdités par obusite.) R. Ranjard.—p. 279.
34 Device for Convenient Immobilization of Joints. (Appareils métalliques à arc pour l'immobilisation provisoire des plaies articulaires et des fractures juxta-articulaires du membre inférieur.) L. Courty.—p. 284.
35 Variable Tendon Reflexes in Syphilitic. (Réflexes tendineux variables seule manifestation clinique objective d'un état asthénique grave.) Dumolard, Rebierre and Quellien.—p. 286.

Presse Médicale, Paris

September 28, XXIV, No. 54, pp. 429-436

36 Factitious Picric-Acid Jaundice. (Pathogénie, diagnostic chimique et caractères urologiques des ictères par ingestion d'acide picrique.) M. Brulé, M. Javillier and B. Baeckeroot.—p. 429.
37 Gaseous Complications of War Wounds. N. Lapeyre.—p. 431.

Revue Médicale de la Suisse Romande, Geneva

September, XXXVI, No. 9, pp. 537-624

38 *The Skin Tuberculin Test in Schoolchildren. (A propos du Pirquet dans les écoles de Lausanne.) Weith.—p. 537.
39 *Roentgenotherapy of Uterine Fibromas and Hemorrhagic Trouble. Beuttner.—p. 553.
40 *Diagnosis and Treatment of Perforated Gastric and Duodenal Ulcers. G. Patry.—p. 574.
41 *Brazilian Trypanosomiasis: Chagas' Disease. (La trypanosomiase brésilienne et son rapport avec le corps thyroide.) E. Novaes. —p. 592.

38. **The Skin Tuberculin Test Not for the School.**—The Journal summarized recently Jeanneret's assertions that the Pirquet test should be applied systematically to schoolchildren. Weith here takes issue with him, declaring that the Pirquet technic is not always absolutely harmless. Doganoff and Slatineau observed such pronounced general reactions and subjective phenomena that the latter has abandoned the Pirquet for the ophthalmoreaction. On the other hand, the response to the test is far from being always conclusive, especially in children. Müller found tuberculous lesions at necropsy in twelve out of seventy-seven with negative Pirquet during life. In short, Weith declares, we can assume to start with that now all children are infected with tuberculosis, and that all weakly children are nonresistant and hence should be built up into strong health. Efforts should be directed to prevent the children's getting infected in the first place. The local authorities should enforce regulations to ensure hygiene in the community. The school medical inspector should refrain from abusing his authority. The Pirquet test should be left to hospital and private practice. In conclusion Weith comments on the prevalence of bad breathing habits. So few children and even adults take in enough air into their lungs. Weakly children in particular do not expand their lungs enough.

39. **Roentgenotherapy of Uterine Fibromas, etc.**—Beuttner reports in detail thirty-two cases of fibromas given systematic roentgenotherapy, and twelve cases of hemorrhagic uterine trouble. His conclusions are to the effect that operative measures are preferable when the patient has to be cured as soon as possible and with the least expense. When an operation is impracticable for any cause, Roentgen exposures are a precious resource. He aims to restore physiologic conditions with uterine affections, not to arrest menstruation definitely, and he regards the results obtained as very satisfactory.

40. **Perforated Gastric and Duodenal Ulcer.**—Patry remarks that the outcome depends on the physician who suspects a perforation rather than on the surgeon who operates for it. Among his twenty-seven cases of perforation, one developed in the hospital under his eyes, and he was impressed with the difference between the clinical picture presented and the descriptions of such in the textbooks. He was impressed in this and other cases with the pronounced remission of symptoms after the first phase, the shock, which may last from a few minutes to two hours. Then the pain becomes bearable, the patient feels and looks much better, and the pulse grows slower and stronger. This deceptive improvement may last for two or three hours. This is the time for operation, although it may be hard to convince the patient of the necessity for it, as he thinks the trouble is waning. One great advantage of operating during this early phase of remission is that we thus take advantage of the reflex spasmodic contraction of the pylorus which occurs from the irritation but seldom lasts more than four or five hours at most. Then comes the phase of peritonitis. Perforation of a gastric or duodenal ulcer presents a more sudden and dramatic picture than appendicitis. The general condition is more serious, the pulse weaker and faster, and respiration becomes shallow and rapid, of the superior costal type, the patient trying to spare his abdomen all exertion. The muscle is woody only above the umbilicus, as a rule, and the pains spread upward instead of downward as with appendicitis. There is seldom fever with perforation at first, while it usually accompanies appendicitis. Patry denounces further the teaching that perforation may occur like a bolt of lightning from a clear sky; there is always a history of stomach or duodenal trouble in such cases. It may have been misinterpreted, as when a patient describes "hunger pain" and cites it as a manifestation of his "fine appetite," excluding all idea of stomach trouble.

There were only two women among Patry's twenty-seven cases. The perforation occurs usually during the period of gastric digestion; very rarely during fasting. The perforation may become walled off and the peritonitis remain strictly localized, spontaneously subsiding. Patry is convinced that these early plugged perforations are the explanation for the extensive adhesions found so often in the course of operations for old "recurring" ulcers. There may be sudden and violent cramps in the stomach, weakening the patient for a few days; but then there is no further trouble as the perforation ceases to be permeable.

The shock with perforation of an ulcer is due to the sudden irritation of the peritoneum from the stomach fluids. The syncope and changes in the pulse are the result of a reflex from the peritoneum. During the first five hours the ulcer is the main thing, the peritonitis can be disregarded, as a rule. After the fifth hour the peritonitis must be combated and the ulcer left to be attended to later, six weeks, three months later perhaps. Treatment for perforated gastric

or duodenal ulcer is thus the same as for appendicitis, only that the perforated ulcer causes a graver syndrome which develops more rapidly and demands a more serious operation, and the physician has less time to study the case.

41. **Chagas' Brazilian Trypanosomiasis.**—Novaes has been studying Chagas' "parasitic thyroiditis," as the latter designated it at first, and gives here the results of much experimental work. The parasite has been named the *Schizotrypanum cruzi*. Two colored plates show its growth and habitat in the blood. It induces in adults hypertrophy of the thyroid with myxedema, melanoderma and muscular weakness; in children the course is more acute, with fever, swelling of glands and hypertrophy of the thyroid, entailing symptoms from thyroid insufficiency and sometimes from meningeal irritation. In the chronic form there may also be a syndrome with heart or nervous symptoms predominating. The mind does not seem to be affected with goiter from this cause. Vaccines made from the parasite have not to date proved effectual. The parasites locate by preference in the skeletal striated muscle, but may invade glandular, adipose and connective tissue, heart, spleen, etc. Most of the cells of the organism seem to bear invasion by the parasites without much harm, but suffer from their toxins. These seem to affect the thyroid predominantly, but the genital glands and suprarenals are liable to suffer as well as the nervous system from the presence of the parasites in the brain. Their penetration into the heart is responsible for most of the deaths from Chagas' disease. The intermediate host is a bug, called "barber" by the natives as it bites mostly about the face.

Correspondenz-Blatt für Schweizer Aerzte, Basel

September 30, XLVI, No. 40, pp. 1249-1280

42 *Hysteria from Otologic and Rhinologic Standpoint. (Oto-rhinologische Beiträge zur Kenntnis der Hysterie.) F. Siebenmann.—p. 1249.

43 Malignant Pustule Subsides under Neosalvarsan. F. Heim.—p. 1258.

44 Measurement of Radium Activity. (Radiumskizzen. I.) E. Sommer.—p. 1262.

45 Nonfatal Lightning Accident. (Militärunfall durch Blitzschlag.) Bühler and Gisler.—p. 1264.

42. **Hysteria from Otologic-Rhinologic Standpoint.**—Siebenmann mentions briefly a number of cases in which the patients tried to deceive the physician by simulating or aggravating ear and nose troubles. In Chavanne's imposing compilation of cases of this kind, in 1901, males predominated. Siebenmann warns of the prevalence of what he calls *furor operativus subjectivus*. These patients are generally girls or young women who have been operated on once or have some chronic ear trouble or have watched some one who had. In one such case the young woman succeeded in getting fourteen operations performed, including two mastoid operations. Differentiation is most difficult when the manifestations of the hysteria are restricted to the ear. We must be on the alert when the objective findings do not seem to justify the intensity of the subjective symptoms. He is convinced that we are deceived into doing needless operations on sound accessory sinuses more often than the literature records. All are agreed that when the hysteric nature of the trouble is learned, the patient should be handed over to the psychiatrist. Cold douches and other brusque methods may exceptionally cure, but sham operations should not be attempted. He describes in detail the case of a young woman who had otitis in childhood and later simulated gastric ulcer and pulmonary tuberculosis and had operations for gastric trouble and three mastoid operations. A second young woman had chronic otitis media on one side and secured seven operations on the mastoid or accessory sinuses. The consequence is deafness on that side and paralysis of the face and tongue from operative injury. Both these women became addicted to morphin. In a third case a boy of 12 became totally deaf after the explosion of a bomb from an aeroplane. He was also unable to speak and presented a number of sensory and vasomotor cerebellar symptoms. This condition persisted rebellious to all measures for eight months. A complete change of environment—to the children's ward of a hospital—and local treatment of a catarrhal affection of an eustachian tube almost at once restored conditions to clinically normal. He did not improve when placed in a private room at the hospital.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 28, XXXVII, No. 78, pp. 1217-1232

46 *Cure of Tuberculous Epididymitis under Iodin-Iodid Treatment. (Caso di tubercolosi dell'epididimo guarito con la cura alla Durante.) A. Sofia.—p. 1229.

46. **Iodin Treatment of Tuberculous Epididymitis.**—In the case reported the solution of iodin and potassium iodid was injected directly into the fistula every few days and a subcutaneous injection made every day—all according to Durante's technic. The patient was thus given eighteen local and over 300 subcutaneous injections. When seen again six months later the young man was apparently in a most satisfactory, well nourished condition, the mucous membranes pink and the fistula healed. The bunches on the epididymis were soft, not tender, and reduced in size and number.

Policlinico, Rome

September, XXIII, Medical Section, No. 9, pp. 313-344

47 *Auscultation of Whispered Words in Diagnosis of Pleural Effusions. (Il fenomeno del Baccelli.) G. Viola.—p. 313.

48 *Pernicious Anemia. A. Roccavilla.—p. 329. To be continued.

Surgical Section No. 9, pp. 257-288

49 Treatment of Fracture of the Clavicle. C. Ghillini.—p. 257.

50 *Influence of Trauma and of Operative Procedures on Manifestations of Malaria. I. di Pace.—p. 260. First instalment in No. 5, p. 142.

51 The Urochromogen Permanganate Reaction in the Urine Not Specific for Tuberculosis. (La reazione di Moritz-Weiss in rapporto alla pratica chirurgica.) C. R. Belgrano.—p. 276.

52 Catheterization of the Ureters. E. Pirondini.—p. 284. To be continued.

47. **Transmission of Sounds Through Pleural Effusions.**—Viola's study of this subject has confirmed the fact that when whispered words can be auscultated the effusion is fluid. When some of the letters seem to be dropped out of the words, the effusion is somewhat purulent. As less and less of the words is heard, but the bronchial murmur persists, the effusion is more and more purulent. When nothing can be heard, no decisive conclusions can be drawn. This sign, known as Baccelli's phenomenon, assumes most importance after pectoriloquy of the whispered voice has reached its limit.

48. **Pernicious Anemia.**—Four cases of pernicious anemia of the classic type are reported with the necropsy findings. In one the Wassermann reaction was positive although Roccavilla is confident that syphilis could be excluded. He calls attention further to the burning heat and dryness of the lips, tongue and throat of which all the patients complained as the first sign of trouble. The complexion assumed a lemon yellow tint with greenish reflections in all but one of the patients, and in this case the anemia was symptomatic.

50. **Influence of Trauma on Manifestations of Malaria.**—Di Pace relates some cases of apparently entirely cured malaria in which, months and years later, after an operation or severe trauma, the malaria flared up again in severe form. It must be that the malarial parasite can lie latent in the organism in some of its known forms, or in some yet unobserved form, capable of reproducing itself under certain exceptional conditions. He discusses recent literature on the subject, and declares his conviction that a radical cure of malaria can never be counted on.

Riforma Medica, Naples

XXXII, No. 26, pp. 697-724

53 Pathologic Anatomy of Malta Fever. (Febbre melitense.) B. Lunghetti.—p. 697.

No. 27, pp. 725-752

54 Hypochlorous Acid in Treatment of War Wounds. (Asepsi ed antisepsi in chirurgia di guerra.) N. Giannettasio.—p. 728. Commenced in No. 25.—p. 676.

No. 28, pp. 753-780

55 *Fatal Erythema in Woman. (Eritema idiopatico mortale.) P. F. Arullani.—p. 753.

56 Psychic Mutism in Soldiers on Active Service. (Alcune considerazioni attorno al mutismo psichico nei militari, alla sua genesi emozionale e commozionale.) C. Goria.—p. 756. Commenced in No. 27.—p. 725.

55. **Fatal Erythema with Exudation.**—Arullani's patient was an otherwise healthy young woman with an ordinary erythema which had commenced three years before on the face. It subsided under local measures but returned nearly three years later, very severe, with certain characteristics of eczema, and was soon accompanied by uremia from acute parenchymatous nephritis, rapidly fatal. He is convinced that the kidney trouble was secondary to the exacerbation of the skin disease. There was nothing to suggest syphilis, rheumatism or other cause. Lewin had ten deaths in his seventy cases of erythema with exudation but the erythema was secondary to visceral trouble responsible for the fatal outcome. Under local treatment with petrolatum with from 5 to 10 per cent. oil of cade, the dermatosis in Arullani's case was apparently retrogressing when the fatal uremia developed.

Cronica Medica, Lima, Peru

XXXIII, No. 1, pp. 1-32

57 Mossy Foot. (Pie musgoso.) J. Arce.—p. 6.
58 Therapeutic Artificial Pneumothorax. (Metodo de Forlanini y tuberculosis pulmonar.) A. Corvetto.—p. 20.

No. 2, pp. 33-64

59 *The Remissions in Renal Tuberculosis. (Los periodos de mejoria en la tuberculosis renal.) C. M. Macedo.—p. 33.
60 The Oil Beetles of Peru and Therapeutic Action of Their Oil. (Estudio de los pseudomeloides de Peru y de la accion terapeutica de la pseudomeloidina.) E. Escomel.—p. 49.

No. 3, pp. 65-96

61 Camphor for Local Application in Smallpox. (Estudio de algunos tratamientos propuestos en la viruela. Exposicion de un nuevo metodo.) T. Taboada.—p. 71.
62 Hemorrhagic Purpura of Malarial Origin. E. Odriozola.—p. 75.
63 Indications and Technic for Prostatectomy. M. V. Matos.—p. 79. Continued.

59. **The Waves of Improvement in Renal Tuberculosis.**—Macedo has followed to date the history of three patients with a tuberculous process in the kidney who refused to permit operative treatment, and their kidney trouble seemed to pass into a latent phase. The secondary bladder changes also subsided more or less completely. The phenolsulphonephthalein test and Ambard's uremic constant, however, show that the functioning of the kidney has not improved. The detailed findings from clinical examination repeated at various times during the year are given for each time in each case. The symptoms which have subsided are the pain in the lumbar region, abnormal frequency of micturition and hematuria. The kidney proper is not really sensitive and the local pain is from stretching of the capsule, etc. As the kidney shrivels the pain subsides. On the other hand, the polyuria persists constantly and with it the albuminuria and pyuria, the latter minute but constant, and tubercle bacilli are still found in the urine. These findings show that the improvement with advanced renal tuberculosis is deceptive. When a tuberculous process in the kidney has reached the "open" stage, we can never count on a spontaneous cure or on recovery under medical measures alone.

Semana Medica, Buenos Aires

August 17, XXIII, No. 33, pp. 151-172

64 The Electron Conception of Values. (El concepto electronico de la valencia.) P. J. Mesigos.—p. 160.
65 Auscultation of Middle Ear During Swallowing. (Ruido auricular.) A. S. Lagomarsino.—p. 164.
66 Prophylaxis and Treatment of Syphilis in Maternities. E. Mazzini. —p. 165.

August 24, No. 34, pp. 173-194

67 Vaccine Treatment of Diphtheria. (Vacuna antidifterica Lemos.) C. Ponce.—p. 173.
68 Official Systematization of Modern Medicine: The Practitioner of the Future. (La sistematizacion oficial de la medicina moderna.) F. Otero.—p. 174.
69 History of Public and Social Hygiene in Argentina. I. (Puericultura en la Argentina, 1879-1910.) E. R. Coni.—p. 176.

Mitteilungen a. d. med. Fak., Kyushu Univ., Japan

II, pp. 1-280. German Ed. Last indexed Feb. 27, 1915, p. 783

70 *Common Trychostrongylus Intestinal Parasite in Japan. (Ueber "Trichostorongylus orientalis Jimbo.") K. Kitamura.—p. 1.
71 *Pancreatitis Caused by Ascarides; Four Cases. (Klinisches und Experimentelles über die Pankreatitis verminosa und Pankreasnekrose.) G. Izumi.—p. 61.
72 *Influence of the Food on the Composition of the Bile. (Einfluss der Nahrung auf die Zusammensetzung der Galle.) R. Toida. —p. 153.
73 Can the "Bleeding Polypus" Grow Out of the Nasal Turbinal? T. Matsui.—p. 175.
74 *Chorio-Epithelioma. (Zur onkologischen Kenntnis der sogen. heterotopischen Chorionepitheliome.) S. Yasuda.—p. 181.
75 *End-Results of Operative Treatment of Gastric Cancer. (Resultate der operativen Behandlung des Magenkrebses, insbes. über Dauerheilung.) H. Miyake.—p. 203.

70. **Trichostrongylus in Japan.**—Five double or triple page plates accompany this study of what Kitamura thinks is a new species of intestinal parasite. The ova are like those of the hookworm, but larger. The larvae were able to invade the mouse through its skin, but the parasite seems to have but little pathologic significance except from the bulk of large numbers.

71. **Ascaris Pancreatitis.**—Izumi relates that he has not been able to find any records in the literature of cases of chronic pancreatitis of parasitic origin, aside from a case published in Japan and a case in a cat, reported by Ordway. But he has encountered four cases in which persisting pains in the pancreas region and other symptoms compelled removal of the pancreas, and ascaris ova were found embedded in a circumscribed inflammatory process. In one case also a long female ascaris was found in the pancreatic duct and tail of the pancreas. The stomach, liver and biliary ducts were apparently normal in each case. Izumi reports further experiments on nine dogs injected with an emulsion of ascaris ova into the pancreas with control injections of isotonic salt solution. The findings confirm those in the clinical cases, showing that irritation from immigrated ascaris eggs is liable to set up chronic circumscribed pancreatitis. No fat tissue necrosis was found in the animals, although it was pronounced in the clinical cases. This suggested further research on the causation of acute hemorrhagic pancreatitis, and the details of experiments on ninety-six other dogs are given, showing the effect on the pancreas of interference with its circulation, of obstruction of the outlet, of injected duodenal content, injected olive oil, steapsin, hydrochloric acid, sterile or infected bile, blood and serum, trypsin, pancreatic juice or extract of duodenal mucosa. A bibliography of 113 titles is appended and four plates show some of the microscopic findings. The data all confirm the view that the trypsinogen element of the pancreatic juice is responsible for acute hemorrhagic pancreatitis, but it first has to be activated, and an extract of duodenal mucosa is the most potent activator. All other factors consequently are of minor importance in the genesis of necrosis of the pancreas.

72. **Influence of the Food on the Composition of the Bile.**—Toida's five dogs with fistula into the gallbladder had greatly increased proportions of the bile salts, cholesterin and fat in the bile when they were fed meat and fat foods. The mucin, the pigments and the inorganic salts did not seem to be much influenced by changes in diet.

74. **Ectopic Chorio-Epithelioma.**—Yasuda reports that the cadaver of a woman of 28 showed a primary cancer in the small intestine with multiple metastases in liver, lung, kidney, brain and mesenteric glands. Several years had elapsed since the woman's last childbirth, but the microscope revealed that the malignant growth was a chorio-epithelioma. He describes further the cadaver of a man of 54 dying of cancer in the pleura with multiple metastases. The microscopic findings closely resembled those of a chorio-epithelioma, but he thinks that such cases, in males and virgins, should be called pseudochorio-epithelioma.

75. **Ultimate Outcome of Operations for Gastric Cancer.**—Miyake gives the details and history to date of 175 patients with gastric cancer given operative treatment between 1902 and April, 1914. During this period 411 operations were done; no operation was attempted in thirty-two other cases. This article thus is based on 443 cases. In twenty-eight of the cases other members of the family had had gastric cancer. In only seven cases was there a reliable history of a preexisting ulcer. Of the 175 patients treated with resection, fifty-eight succumbed to the effects of the operation, a mortality of 33.1 per cent. He cites figures from twenty-eight

clinics regarding 1,266 resections for gastric cancer, with a mortality range from 66.6 to 8 per cent., the average being 32.8 per cent.—not much higher than the figures at his hospital. The technic and various problems of gastric cancer are discussed in detail and the present condition of the 117 surviving patients is tabulated: fifty succumbed to recurrence of the cancer after intervals of a few months to five years, the average survival being nearly nineteen months. Nearly 15 per cent. are in good health to date, more than three years since the resection. Analysis of these cases shows that the duration of the malignant disease and the histologic nature of the tumor are not of as much moment for the permanent cure as the absence of glandular metastases and tough adhesions, and the microscopic evidence of an early phase of the malignant growth. Exploratory laparotomy seems to be the only certain means for an early diagnosis.

Russkiy Vrach, Petrograd

XV, No. 33, pp. 769-792

76 *Familial Progressive Amaurotic Idiocy; Two Cases. (2 sluchaya bolizni Tay-Sachs'a.) I. A. Shabad.—p. 775.
77 Experimental Research on the Reaction of the Vessels of the Isolated Spleen to Certain Hormones. (K voprosu o reaktsie sosudov obosoblennoi—isolirovannoi—selezenki po otnosheniiu k nickotorim hormonam.) A. A. Grube.—p. 778.
78 Experiences with Antityphoid Vaccination at Vladivostok Marine Hospital. (Predokhranitelniya protivutiphorniya privivki . . .) A. A. Shishlo.—p. 782.

76. Familial Amaurotic Idiocy.—Shabad states that about twenty-nine cases of Tay-Sachs' disease have been published in Russia, and he adds two typical cases to the list. The children developed apparently normal until the ages of 6 and 9 months, and then became absolutely lethargic, idiotic and blind, with muscles so lax that if the child was made to sit up, its head and back bent over until the face barely escaped touching the horizontal knees. Both died about the age of 2 from intercurrent disease.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

September 30, II, No. 14, pp. 1173-1268

79 *Osteochondromatosis of the Joint Capsule. (Osteochrondromatose van de gewrichtskapsel.) J. W. Kopp.—p. 1175.
80 *Goiter and Melancholia. (Struma en depressie.) B. D. G. Kappenburg.—p. 1187.
81 *Investigation of Visual Field in Operative Cases of Glaucoma. (Gezichtsveldonderzoek en glaucoomoperatie.) G. J. Schoute.—p. 1200.
82 The Crossed Finger Sensory Delusion. (Het tastzinbedrog van Aristoteles.) T. Wassenaar.—p. 1208.
83 Actinomycosis of the Lacrimal Duct; Three Cases. (Drie gevallen van actinomycose der traanwegen.) W. Koster.—p. 1213.

79. Osteochrondromatosis of the Joint Capsule.—Kopp has been able to find records of only twelve cases of this affection in the literature and yet he has encountered three cases in his own practice at Rotterdam. The patients were men of 24 and 39 and a woman of 77. One knee in one man and both knees in the other and in the woman were affected. The trouble began very insidiously and slowly developed in the course of years without much pain or limping, but suddenly there were severe symptoms as from incarceration of a loose body in the joint. When the joint is opened a number of hard, movable bodies are found, scraps of cartilage tissue, which apparently have developed from the capsule, the bone proper being entirely normal in aspect, and no signs of an infectious process having been found in these cases. Opening the joint and removing the loose bodies put an end to the trouble for a time but the former status soon returned, and arthrectomy likewise did not ward off recurrence. Resection offers the best prospects, and this Kopp commends as the rational treatment. He applied it to the older man and with eminently satisfactory results for twenty months to date, but now the other knee seems to be developing the same process. The younger man is a medical student and roentgenograms at different intervals during the three years show that the process is progressing but he refuses operative treatment. A number of hard, freely movable, loose bodies can be palpated in the right knee but there is little pain except when one of the free bodies gets caught between the parts of the joint. There is increasing limitation of the movements of the joint. The roentgenograms accompanying the article show the proliferation of the capsule but the bones of the joint seem entirely normal. No measures except surgical offer the least prospect of success. In one case the loose body seems to have broken through the capsule. This happened also in Lexer's case. No instance is known of the trouble proving malignant at any time. Although the proliferation of capsule tissue may eventually proceed outside the capsule, it does not spread by infiltration but by pushing other tissues aside.

80. Goiter and Depressive Conditions.—Kappenburg states that 20 per cent. of the fifty-six persons with goiter at the Utrecht Hospital presented more or less pronounced mental impairment while only 4.4 per cent. among 437 other inmates showed anything of the kind. Among the 20 per cent. nearly all were of the manic-depressive or melancholia types of psychosis, while this was true of only 1.1 per cent. among the others. The thyroid gland seems to be affected more than others by emotional influences. It is the *glande de l'émotion* as it has been called. He compares the various theories as to the pathogenic influence of the thyroid and its connection with psychic depression. One thing is certain, he declares, namely, that such an influence exists, and the figures he presents sustain this assumption.

81. The Visual Field as Guide for Operating in Glaucoma.—Schoute explains with illustrations how the changes in the visual field with glaucoma indicate the special operative measures required in the individual case.

Hospitalstidende, Copenhagen

October 4, LIX, No. 40, pp. 965-988

84 *Pains in the Feet. (Om Smerter i Fødderne.) C. Otto. Commenced in No. 38.—p. 913.

84. Pains in the Feet.—Otto remarks that the weight of the body is an ever increasing burden which the feet have to bear from the cradle to the grave, often exposed to cold and damp and other unfavorable conditions impeding circulation and nourishment. But traumatism is the main factor in the pathology of the feet. Not single trauma, but injury from long continued compression and weight bearing. This reduces their resisting power, and may entail insufficiency even when no objective signs of it are evident. But the result is always the same, complaints of tired, aching, tender feet, stiffness and pains. The pains are often referred to some point apart from their actual source, so that it is necessary to study the whole extremity as a static unit and examine it throughout. To compensate or relieve pain at some point a position may be assumed which elicits pain at another point. With genu valgum, for instance, the foot is held in a varus position, while there is a compensating flatfoot with genu varum. The location of callouses may aid in the diagnosis of static disturbances, as he describes in detail, especially with a tendency to pes valgus. He discusses in turn the various causes for pain in the heel region, in the middle of the foot and in the anterior portion, with roentgenograms of typical examples. A tendency to valgus or deforming arthritis may induce pain in the heel region; both are common, he says, and are liable to be misunderstood. Inadequate nourishment of the foot is undoubtedly a factor in the development of static flatfoot. The inadequately nourished muscles and ligaments are unable to do their work properly, and flatfoot disturbances ensue. Otto emphasizes that flatfoot is brought on more by standing than by walking. Muscles require action to keep in normal condition. Standing, with its incessant pressure on the soles of the feet, impedes the influx of arterial blood and the outflow of venous, and the insufficiently nourished muscles and ligaments stretch.

After discussing in detail the numerous traumatic and inflammatory changes in the foot which may be responsible for pain, Otto reaffirms that flatfoot must be incriminated in 95 per cent. of the cases in which the pain subsides during rest. Flatfoot in children usually manifests itself suddenly after some overexertion, and the pains and contracture are extreme. In older persons it develops more gradually and the pains may be vague and localized in the buttocks, back,

shoulder, gastrocnemius, inner side of the knee or elsewhere, and are often mistaken for gout or chlorosis. He has the patient stand on a chair and he examines the feet from the rear. The heel is inclined to pronation. The internal malleolus is unduly prominent, while the external is scarcely perceptible, so that the ankle looks flattened. The Achilles tendon forms an open angle. The head of the astragalus is very prominent, as also the tuberosity of the scaphoid. The whole presents a characteristic outline and the diagnosis is confirmed by the tenderness back of the tuberosity of the scaphoid, over the triangular ligament, and in front of the external malleolus.

Norsk Magasin for Lægevidenskaben, Christiania

October, LXXVII, No. 10, pp. 1253-1396

83 *Experimental Study of the Functions of the Spleen. (Til studiet av miltens funktion.) A. Brinchmann.—p. 1253.
86 *Infant Mortality in Homes Where There is Tuberculosis. (Spædbarn i tuberkuløse familier i Kristiania.) Y. Ustvedt.—p. 1301.
87 *Improvement under Organotherapy of Pituitary Tumor. (Et tilfælde av hypofysetumor behandlet med organoterapi.) V. Magnus.—p. 1319.
88 Emetin in Treatment of Dysentery. V. Vogt (Yi-yang, China). —p. 1327.
89 *Fracture of Transverse Process of Lumbar Vertebra. (Om fraktur av lændehvirvlernes tvertagger.) S. Widerøe.—p. 1339.

85. **Experimental Research on the Functions of the Spleen.**—Brinchmann tabulates the blood findings and the changes in the pulse, etc., after splenectomy, with and without treatment with spleen extract. The work was done on twenty-four rabbits and nineteen guinea-pigs. One of the main questions he sought to answer was whether any evidence could be discovered indicating that the spleen regulates the functioning of the red bone marrow or of the lymphatic apparatus. The article is to be continued.

86. **Infant Mortality in Families Where There is Tuberculosis.**—Ustvedt has been compiling data in this line during the last five years at Christiania. When such a record has been continued for twenty years, tracing the later fate of the infants born in these families, unquestionably valuable lessons can be deduced from it. His material includes 480 infants born in families where there was one or more members with tuberculosis in a contagious stage. An average of 19.2 per cent. of the infants died within the first year of life while the average infant mortality in the city at large was 10.8 per cent. A number of tables are given for comparison of various data. They testify anew among other things to the dire influence of tuberculosis in the mother and of bottle feeding. Of the 19.2 per cent. that died within the first year, 40 per cent. had a tuberculous mother, and of the 334 breast fed children only 10.5 per cent. died while 28 per cent. of the 128 bottle fed did not live through the first year. Only 37.1 per cent. of the infants died of actual tuberculosis among the 124 that died during the five years in question. He comments that these figures teach nothing new, but they emphasize anew the vital importance of removing infants at once from tuberculosis in the environment, and especially from a tuberculous mother. Such statistical works as this can be utilized to educate the parents to the necessity for sending the infant out of the menacing environment. The tables show that when the mother had tuberculosis, the infant's danger was the greatest, whether it was bottle or breast fed.

87. **Tumor in Pituitary Body Treated with Pituitary Extract.**—Magnus' patient was a man of 29 who for several months had suffered from headaches and other symptoms of a tumor in the pituitary body. For the last three months he had been blind, vision being lost first in one eye. There was some improvement under a decompressive trephining operation followed by Roentgen exposures. Then a pituitary extract was given systematically by subcutaneous injection, and the tumor evidently retrogressed under it to some extent as vision returned. To restore sight to a blind man even for a few months is certainly encouraging. The man refused operative measures and the condition finally grew gradually worse again.

89. **Fracture of Transverse Process of Lumbar Vertebrae.**—Widerøe tabulates the details of thirty-five cases of this kind on record and two from his own practice. In his cases the fracture was indirect, one workingman of 40 slipping on one leg in alighting from a car. The third vertebra was the one affected, and the man was incapacitated for eighteen months and was accused of simulating or exaggerating the trouble of which he complained. When there are complaints of vague pains in the lower part of the back, for which no organic cause can be detected, the possibility of fracture of one of the transverse processes must be borne in mind. In the thirty-five cases in the literature the trouble was almost invariably ascribed to rheumatism, lumbago or sprain. Payr was the first to diagnose it in the living subject (1907) with the aid of the Roentgen rays.

There is always considerable tenderness at the point of the recent fracture, to one side of the median line, and the patient holds the region or the whole spine stiff and moves it as little as possible, with more or less scoliosis toward the sound side. Bending over to the sound side is particularly painful. When it is the transverse process of the first lumbar vertebra that is fractured, deep breathing elicits pain. If the fifth vertebra is involved, there is severe pain in bending over backward. The retroflexion squeezes the fractured bone between the crest of the ilium and the fifth vertebra. On the other hand, bending over backward does not cause this severe pain if the process above is the one that is injured. The contraction of the muscles in the region and extravasation of blood are liable to cause swelling, but there is no deformity of the spine and no signs of pressure on the cord.

Roentgen examination may be misleading in some cases, as the psoas may overlap the first and second processes or a concretion in the kidney may prove deceptive. The transverse process casts but a small shadow at best and there is no typical fracture dislocation.

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90 *Splenectomy. (Om Miltexstirpation.) J. Schou.—p. 1609.
91 The Wassermann Reaction Is Not Infallible. (Gør Wassermann-Reaktionen mest Skade eller Gavn?) B. Pontoppidan.—p. 1622.

90. **Splenectomy.**—A good review of the history of splenectomy is given by Schou with the experiences with it in various lands. The first splenectomy dates from 1549 or 1581 but the first time the spleen was removed on account of malaria was in 1855. Kopylow in 1913 had compiled 201 cases in this category, with a mortality of 25 per cent., but admits that the splenectomy is only palliative. Quite a number of persons have been restored to clinical health for a long time by removal of the tuberculous spleen, and Hoffmann has reported good results after removal of the spleen enlarged by a syphilitic process, rebellious to other measures. Splenectomy has been practically abandoned as treatment for leukemia except when local symptoms call for it, and it seems to have proved disastrous in the few cases in which it was done for polycythemia. But in Banti's disease it has proved its usefulness, even although we do not accept this syndrome as a morbid entity. Splenopexy has also answered the purpose here, according to Schiassi and Rossi. Schou thinks the only explanation possible for this is that the spleen does not functionate as well after the fixation, and hence does not produce so much toxins. Rovsing found in a case of apparently Banti's disease that there were no signs of fibrosis in the spleen although it weighed 4 kg. Necropsy three months after the splenectomy revealed a gangrenous ulcer in the cardial part of the stomach, that had involved the vessels communicating with the spleen. Schou splenectomized a woman of 37 who came to the hospital with the diagnosis of tumor of the kidney. She had been having severe pains in the upper abdomen with other symptoms suggesting Banti's disease. The spleen weighed 800 gm.; it showed no fibrous changes but rather changes suggesting incipient leukemia or pseudoleukemia. A month later the reds numbered 4,000,000, the whites 17,000 (about twice the previous figure), and a year later the blood picture and general health seemed to be approximately normal.